Vol. 19. Parts 11–12.* Pp. 157–190, 29 figs. 15th Dec., 1950

THE PROCEEDINGS
OF THE
ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

Series B
TAXONOMY
(being the continuation of Stylops)

World List abbreviation: *Proc. R. ent. Soc. Lond.* (B)

CONTENTS

PAGE

KARABAG, Dr. T., F.R.E.S. On some new DECTICINAE (Orthoptera : TETTIGONIIDAE) from Turkey . . . . . 157–161, 17 figs.

ZUMPT, F., Ph.D., F.R.E.S. Further notes and descriptions of *Sarcophaga* species from the Ethiopian region (Diptera : CALLIPHORIDAE) . . . . . 162–173, 6 figs.

UVAROV, B. P., C.M.G., D.Sc., F.R.S., F.R.E.S. A second New Zealand stick-insect (Phasmatodea) established in the British Isles . . . . . 174–175, 1 fig.

SATCHELL, G. H., F.R.E.S. On a new species of Fijian PSYCHODIDAE (Diptera) . . 176–185, 5 figs.

BOOK NOTICES 175

GENERAL INDEX 186

LONDON
PUBLISHED BY THE SOCIETY AND
SOLD AT ITS ROOMS, 41, QUEEN'S GATE, S.W.7
Price 8s. 0d.

* With Title-Page, Contents and Index.

THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

Founded 1833. Incorporated by Royal Charter 1885.

Patron—HIS MAJESTY THE KING.

OFFICERS AND COUNCIL FOR THE SESSION, 1950-1951.

V. B. WIGGLESWORTH, M.A., B.CH., M.D., F.R.S., *President.*

C. T. GIMINGHAM, O.B.E., F.R.I.C.
A. ROEBUCK
A. J. A. WOODCOCK, M.SC.
} *Vice-Presidents.*

A. WELTI, *Treasurer.*

N. D. RILEY, *Secretary.*

H. OLDROYD, M.A., *Editor.*

Other Members of Council.

E. B. BRITTON, M.SC.
C. L. COLLENETTE, F.R.G.S.
N. E. HICKIN, PH.D.
B. M. HOBBY, M.A., D.PHIL.
H. B. D. KETTLEWELL, M.A., M.B., B.CHIR., M.R.C.S., L.R.C.P.
C. W. MACKWORTH-PRAED.
G. D. MORISON, B.SC., PH.D.
T. H. C. TAYLOR, D.SC.
W. H. THORPE, M.A., SC.D.
B. P. UVAROV, C.M.G., D.SC., F.R.S.

MISS E. EVANS, *Registrar.*

Finance and House Committee.

N. E. HICKIN, PH.D. (Chairman).

E. B. BRITTON, M.SC.
A. G. GABRIEL.
A. M. MASSEE, D.SC.
F. VAN EMDEN, PH.D.
A. J. A. WOODCOCK, M.SC.

Publication and Library Committee.

T. H. C. TAYLOR, D.SC. (Chairman).

W. E. CHINA, M.A., SC.D.
J. W. EVANS, M.A., D.SC.
D. L. GUNN, D.SC., PH.D.
A. G. HAMILTON, B.SC., B.AGR., PH.D., D.I.C.
PROF. G. C. VARLEY, M.A., PH.D.

Nomenclature Committee.

FRANCIS HEMMING, C.M.G., C.B.E. (Chairman).

W. A. F. BALFOUR-BROWNE, F.R.S.E.
K. G. BLAIR, D.SC.
O. W. RICHARDS, M.A., D.SC.
N. D. RILEY (Secretary).

Committee for the Protection of British Insects.

H. M. EDELSTEN, O.B.E. (Chairman).

R. B. BENSON, M.A., Mem. Hon. Soc. ent. Belg.
E. A. COCKAYNE, M.A., M.D., F.R.C.P.
B. M. HOBBY, M.A., D.PHIL.
CAPT. R. A. JACKSON, C.B.E., R.N.
LT.-COL. W. B. L. MANLEY.
A. M. MASSEE, D.SC.
A. ROEBUCK.
THE HON. MIRIAM ROTHSCHILD.
N. D. RILEY (Secretary).

The Executive Officers of the Society are *ex-officio* members of all Committees.

DELEGATES OF THE SOCIETY TO :

1. **British National Committee for Biology** (Royal Society).
   Francis Hemming, C.M.G., C.B.E., appointed 1946.
   E. B. Ford, M.A., D.Sc., F.R.S., appointed 1949.
2. **Local Committee of Management of Wicken Fen.**
   H. M. Edelsten, O.B.E. (nominated by Committee for the Protection of British Insects).
3. **National Trust for Places of Historic Interest or Natural Beauty.**
   H. M. Edelsten, O.B.E., appointed 1944.
4. **New Forest Association.**
   C. W. Mackworth-Praed, appointed 1948.
5. **New Forest Joint Committee.**
   Lt.-Col. F. C. Fraser, appointed 1949.
6. **Royal Meteorological Society. Phenological Committee.**
   C. B. Williams, M.A., D.Sc., appointed 1937.
7. **Council for the Promotion of Field Studies.**
   W. H. Thorpe. M.A., Sc.D., appointed 1944.
8. **Joint Bioclimatic Committee.**
   B. P. Uvarov, C.M.G., D.Sc., appointed 1945.
   C. B. Williams, M.A., D.Sc., appointed 1945.
9. **Yorkshire Naturalists' Trust, Ltd.**
   W. D. Hincks, M.P.S., appointed 1946.

SOME NEW DECTICINAE (ORTHOPTERA, TETTIGONIIDAE) FROM TURKEY.

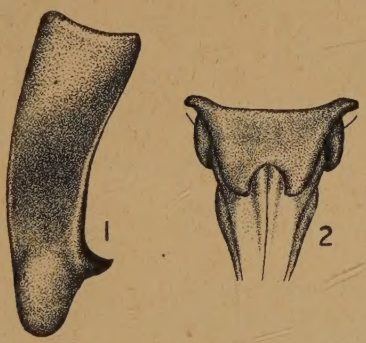
By Dr. T. Karabag, F.R.E.S.

Anterastes uludaghensis sp. n. (figs. 1–2).

♂ (*type*). General coloration castaneous ; upper surface of pronotum light castaneous, lateral lobes of pronotum, base of meso- and metanotum and of abdominal tergites black.

Pronotum relatively long. Elytra extend to end of 4th tergite, with black apex.

End of last tergite tapering. Cercus (fig. 1) cylindrical at base, bent weakly inwards, flattened in middle, with a strong black tooth in last third. Subgenital plate relatively long, with a shallow obtusangular excision.



Figs. 1–2.—*Anterastes uludaghi* sp. n. : 1, ♂, Left cercus ; 2, ♀ subgenital plate and basis of ovipositor.

♀. Colour as in ♂, but face and sides of abdomen darker than in ♂ ; pronotal disc light brown with pale lateral stripes, which in prozona are obtusangularly incurved ; abdomen dorsally with a longitudinal black stripe included between two light ones ; its sides black.

Elytra form very small lateral scales. Subgenital plate (fig. 2) broad, slightly convex, rounded to apex ; which has a deep parabolic excision. Ovipositor long, and slender, brown.

Length of body ♂, 12, ♀ 12·2 ; pronotum ♂ 3·7, ♀ 4·1 ; elytra (visible part) ♂ 3·2, ♀ 0·6 ; hind femur ♂ 10·7, ♀ 11·9 ; hind tibia ♂ 10·4, ♀ 11·4 ; cercus ♂ 1·4 ; ovipositor ♀ 10 mm.

Bursa Province : Uludagh, 2000 m., viii, 1946, 1 ♂, 2 ♀♀ (*Prof. Dr. C. Kosswig*).

This species differs from related species as follows :

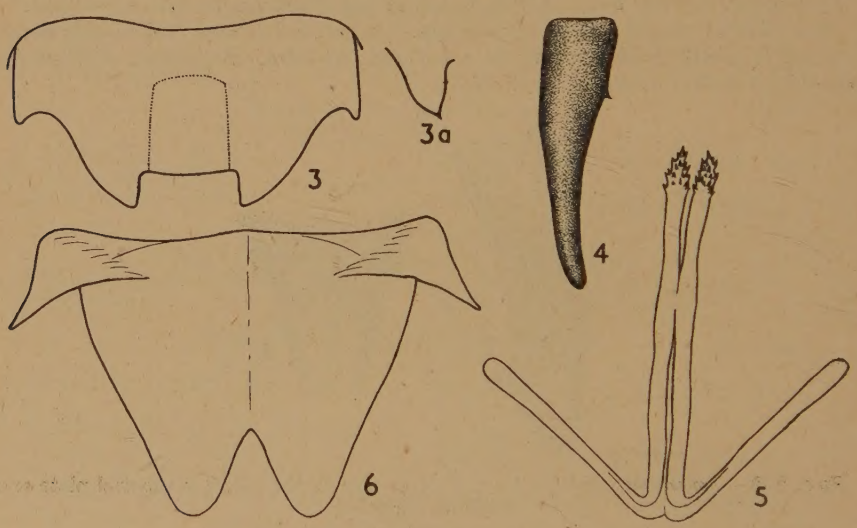
The apical part of the male cercus in *A. serbicus* Br. is long and slightly out-curved, the female subgenital plate has a deep obtusangular excision, and

the ovipositor is much longer. *A. anatolicus* Uvarov is longer (20 mm.), its female subgenital plate has a deep acutangular emargination, and acute slightly inflated lobes. In *A. babadaghi* Uvarov the apical part of the male cercus is long and tapering, and the female subgenital plate has a shallow and broad excision.

Pholidoptera kosswigi sp. n. (figs. 3–6).

♂ (*type*). Body of medium size. Coloration probably light brown (specimens preserved in spirit); occiput with a light median stripe, and black lateral spots; large black spots behind eyes; upper surface of pronotum light brown, lobes of pronotum, upper sides of meso- and metanotum and sides of 1st–3rd tergites black. Posterior margin of pronotum weakly convex. Elytra projecting a little beyond pronotum.

Last tergite (fig. 3) with a deep and broad rectangular excision, with rounded lobes, each extending below into an acute, stout spine (fig. 3*a*). Cercus (fig. 4) cylindrical,



Figs. 3–6.—*Pholidoptera kosswigi* sp. n.: 3, ♂, Last tergite; 3*a*, end of the last tergite lobe; 4, ♂, left cercus; 5, ♂, titillator; 6, ♀, subgenital plate.

slightly incurved, with a small spine on inside of first third. Titillator (fig. 5) slender, on apical part covered with teeth. Subgenital plate approximately pentagonal, with a shallow rounded excision.

♀. Colour as in ♂. Subgenital plate (fig. 6) broad at base, and slightly narrowing towards apex, which has a deep acutangular excision. Ovipositor exceeds half length of body, slender and straight.

Length of body ♂ 17, ♀ 18; pronotum ♂ 6·9, ♀ 6·5; cercus ♂ 2·1, hind femur ♂ 14·9, ♀ 17·6; hind tibia ♂ 13·6, ♀ 15; ovipositor ♂ 14·9 mm.

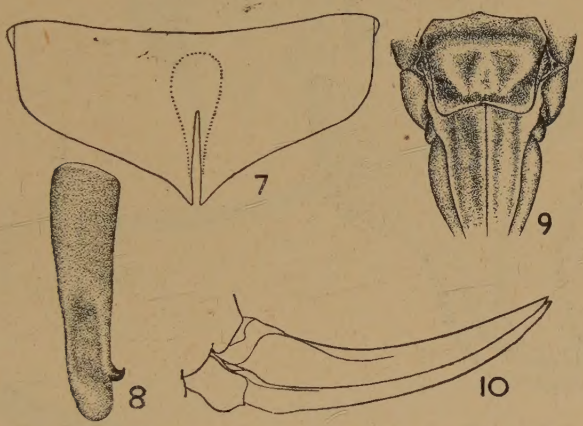
Erzurum Province: Buyuk Guney dağı, 2000 m., 26.viii.1948, 2 ♂♂, 2 ♀♀ (*Prof. Dr. C. Kosswig*).

I have much pleasure in dedicating this new species to Prof.Dr. C. Kosswig, who has collected a number of new and interesting Orthoptera in different parts of Turkey.

Montana ankarensis sp. n. (figs. 7–10).

♂ (*type*). A small and elegant species. General coloration dirty brown.

Pronotum relatively long, its disc flat, with lateral carinae indistinct, rounded. Elytra short, extend to end of third tergite. End of last tergite (fig. 7) with two short appendages. Cercus (fig. 8) relatively long, cylindrical, but flattened between middle and apex, which is round ; a black tooth near apex. Subgenital plate with an obtusangular excision.



FIGS. 7–10.—*Montana ankeransis* sp. n. : 7, ♂, Last tergite ; 8, ♂, left cercus ; 9, ♀, subgenital plate and basis of ovipositor ; 10, ♀, ovipositor and subgenital plate in profile.

♀. Colour as in ♂, but face darker, and bases of abdominal tergites black. Elytra do not reach end of second tergite. Subgenital plate (fig. 9) trapezoidal, with a shallow round excision behind ; surface convex, with two shallow depressions. Ovipositor (fig. 10) relatively short, its base light, apex dark reddish brown.

Length of body ♂ 15·6, ♀ 16·3 ; pronotum ♂ 4·6, ♀ 4·9 ; elytra (visible part) ♂ 3·3, ♀ 3 ; hind femur ♂ 13·6, ♀ 15·5 ; hind tibia ♂ 11·3, ♀ 12·8 ; cercus ♂ 1·9 ; ovipositor ♀ 8 mm.

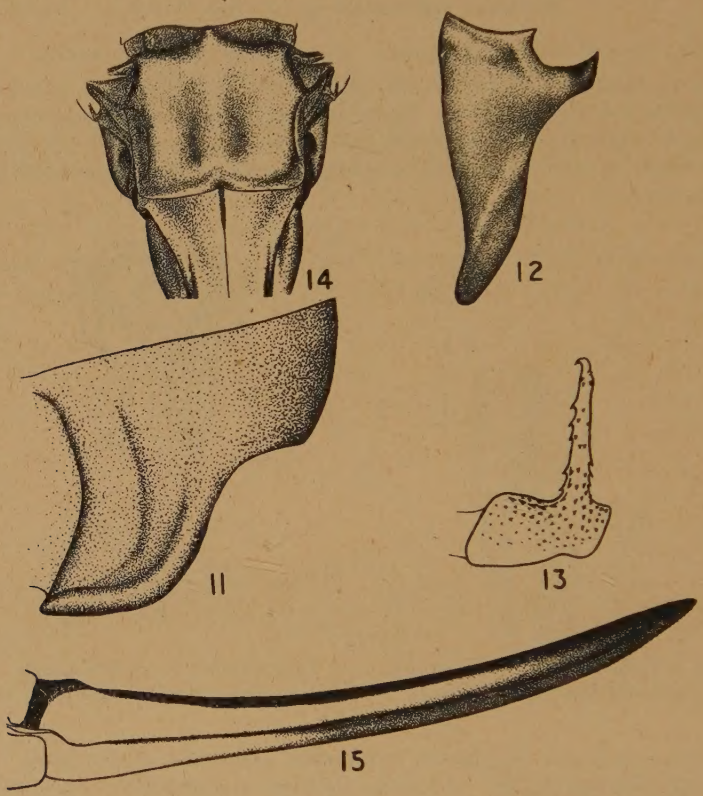
AYDOS, North of Ankara, 1800 m., 9.ix.1947, 2 ♂♂, 2 ♀♀ (*T. Karabag*).

Montana uvarovi sp. n. (figs. 11–15).

♂ (*type*). The largest known species of the genus. Head, pronotum and upper sides of meso- and metanotum black ; elytra black with light brown pattern ; upper surface of first and second femur dark brown ; abdomen reddish brown ; sides of abdominal tergites 1–3 and 7–8 blackened.

Pronotum relatively long. Elytra extend to 5th tergite. Last tergite with two curved lobes (fig. 11). Cercus (fig. 12) relatively long ; basal part broad, the rest lightly excurved, with a strong and large tooth near base. Titillator (fig. 13) reddish brown and with a straight appendage ; all covered with teeth. Subgenital plate long, with a shallow obtusangular excision.

♀. Colour as in ♂, but abdomen stramineous with a lateral series of large black spots. Elytra extend to middle of 5th tergite. Subgenital plate (fig. 14) approximately square with a broad longitudinal convexity. Ovipositor (fig. 15) long, slender, almost straight, its upper edge, apical part and second valvifer black.



Figs. 11–15.—*Montana uvarovi* sp. n.: 11, ♂, Right half of last tergite; 12, ♂, left cercus; 13, ♂, left half of titillator; 14, ♀, subgenital plate and basis of ovipositor; 15, ♀, ovipositor in profile.

Length of body ♂ 24·2, ♀ 26·5; pronotum ♂ 6·6, ♀ 7·2; elytra (visible part) ♂ 9·4, ♀ 9·6; cercus ♂ 2·8; ovipositor ♀ 17·5 mm.

Erzurum Province: Pasinler, 25.vii.1944, 1 ♂, 1 ♀ (*T. Karabag*).

This species is named in honour of Dr. B. P. Uvarov in appreciation of his valuable work on Turkish Orthoptera.

Montana bifoveolata sp. n. (figs. 16–17).

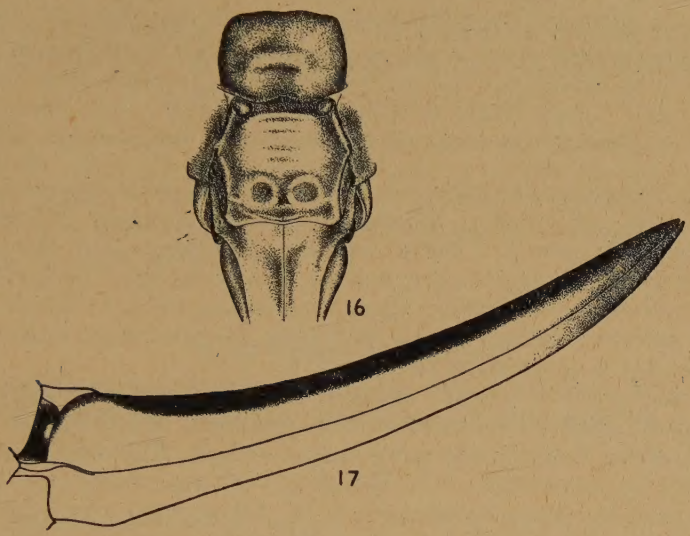
♀ (*type*). Size rather large for the genus. General coloration light brown; face lighter; sides of abdominal tergites with black spots; base of hind femur above with a black spot.

Elytra extend to 4th tergite, with black pattern.

Subgenital plate (fig. 16) approximately hexagonal in shape, with two small lateral

tubercles at base ; surface convex, with two round foveolae near apex ; 7th sternite very convex (fig. 16). Ovipositor (fig. 17) longer than half of body ; second valvifer and upper edge of ovipositor black ; apical part dark brown.

Length of body 24·4 ; pronotum 8·6 ; elytra 6·5 ; hind femur 23·6 ; hind tibia 20·4 ; ovipositor 14·6mm.



FIGS. 16–17.—*Montana bifoveolata* sp. n., ♀ : 16, Subgenital plate, 7th sternite and basis of ovipositor ; 17, ovipositor in profile.

MANISA PROVINCE : Eshme, 15.vii.1948, 2 ♀♀ (*T. Karabag*).

The types of all new species are deposited in British Museum (Natural History) ; paratypes are in the Zoological Institute, University of Ankara.

FURTHER NOTES AND DESCRIPTIONS OF *SARCOPHAGA* SPECIES FROM THE ETHIOPIAN REGION (DIPTERA : CALLIPHORIDAE).

By F. Zumpt, Ph.D., F.R.E.S.

(South African Institute for Medical Research, Johannesburg.)

The only comprehensive paper on Ethiopian *Sarcophaga* species is that by Curran (1934), who studied the material of the American Museum Congo Expedition. He gave a " key to males of *Sarcophaga* and allied genera " known to him, including a great number of new species. Unfortunately he did not take into consideration several species described by Engel (1924) or previous authors ; further species have been described since Curran's paper, so that his key is no longer up to date.

The chief merit of Curran's paper is that he provided a useful basis for further study, chiefly in the drawings of the terminalia of each species. Böttcher (1912–13) stated that it is impossible to deal with the Sarcophaginae without considering the terminalia. It is, therefore, very regrettable that Enderlein, in 1928, published a new classification of the " Sarcophagidae " with descriptions of many new species from all parts of the world without taking any account of the male terminalia.

Enderlein's new species are mostly unidentifiable and all his types must be re-examined. This is at present only possible by a visit to the Berlin Zoological Museum. Another question is that of his new classification, which is chiefly based on the chaetotaxy. I do not believe that the chaetotaxy is of great phylogenetical value in the Sarcophaginae and, furthermore, it is sometimes very variable. But Enderlein used this feature to erect a great number of new genera and even tribes.

Some authors followed Enderlein's idea of splitting up the genus *Sarcophaga* into a number of distinct genera, sometimes using additional features to Enderlein's. Rohdendorf (1937), for instance, based his genera to a great extent on the terminalia, and I think that he has achieved the best grouping so far. Senior-White, Aubertin and Smart (1940) in their work on the Indian Calliphoridae and Séguy (1941), for example, regard the genus *Sarcophaga* s. lat. as so homogeneous that any splitting up only complicates the study, especially the practical work. I incline to their point of view. Perhaps it is reasonable to subdivide the genus into " subgenera " based on the features used by Rohdendorf. But with respect to the Ethiopian species, it is at present most important to get a much more comprehensive knowledge of the species in this region. We are still far from this aim ; Curran, Engel and other authors described a relatively small number of the Ethiopian Sarcophaginae ; more than a dozen new species have already been found amongst specimens received from South African localities.

The restriction of the genus *Sarcophaga* used by me is the same as in the

two above-mentioned works by Senior-White, Aubertin, Smart (1940) and Séguy (1941). My provisional grouping, however, is mainly based on Curran's key, and I shall discuss in this paper and others to be published in the future, some *Sarcophaga* groups characterized by given features. It is not suggested that these groups are necessarily natural ones. As I have already realized, the natural grouping of the Ethiopian *Sarcophaga* species must be postponed to a later date, when we have a better knowledge of this genus.

The taxonomy of the *Sarcophaga* species is based on the male sex only. I am not quite convinced that the females are inseparable in most species, and I already found some features which may hold good. But it is nearly impossible at present to find out which female caught in the field belongs to which male. In most localities a great number of different species occur, so that most of the new species described by me below are also based on the male only. To get a knowledge of the females it may be necessary to breed the offspring of single specimens.

(I) *Sarcophaga nodosa* group.

Distinguishing features.—First wing-vein bare; propleura bare; hairs on the posterior tibia not or scarcely longer than the tibial diameter.

(*a*) Key.

The following species are known to me only from the descriptions: *S. batissa* Curran, *S. booersiana* Engel, *S. fasciventris* Curran, *S. binodosa* Curran. They are, according to the mentioned features, included in the key.

1 (4) Second visible abdominal segment with a pair of well developed median marginal bristles . . . . . 2.
2 (3) Dorsal-central bristles 3 + 3; costal spine of wing present; 3rd antennal segment only a little longer than the second. Terminalia, fig. 1. Cape Province . . . . . *vansoni* sp. n.
3 (2) Dorsal-central bristles 3 + 4; costal spine of wing wanting; 3rd antennal segment more than twice as long as the second. Terminalia Engel, 1924, fig. 15. Cape Province . . *booersiana* Engel.
4 (1) Second visible abdominal segment without medial marginal bristles . . . . . 5.
5 (10) Second genital segment black . . . . . 8.
6 (7) Acrostichal bristles quite indistinct, not longer than the surrounding hairs. Terminalia Engel, 1938, fig. 7. Cameroons *adusta* Engel.
7 (6) Pre- and postsutural acrostichal bristles distinct . . . . . 8.
8 (9) Cerci angularly produced near the base. Terminalia Curran, 1934, fig. 35. Belgian Congo . . . . . *fasciventris* Curran.
9 (8) Cerci equally slender. Terminalia Curran, 1934, fig. 38. Belgian Congo . . . . . *binodosa* Curran.
10 (5) Second genital segment reddish . . . . . 11.
11 (12) Antennae and palpi yellow-orange; 2 postsutural dorsocentral bristles only. Terminalia, fig. 2. Natal . . . . *muspratti* sp. n.
12 (11) Antennae and palpi dark brown to black; more than 2 postsutural dorsocentral bristles 13

13 (14) Postsutural dorsocentral bristles 4–5, the anterior two short and sometimes indistinct. Cerci with a hump near the middle. Terminalia Engel, 1924, fig. 6. E. and S. Africa . . *nodosa* Engel.

14 (13) Postsutural dorsocentral bristles 3, all long and thick. Cerci uniformly slender, without hump.[1] . . . . . 15.

15 (16) Frons narrower, at the narrowest part about one-fourth of the longest eye-diameter; outer vertical bristle wanting; posterior tibia on the lower half of the anteroventral surface with two long bristles (except the apical one); first genital segment with fine hairs only. Terminalia, fig. 3. Transvaal . . *demeilloni* sp. n.

16 (15) Frons wider, at the narrowest part nearly one-half of the longest eye diameter; outer vertical bristle present; posterior tibia on the lower half of the anteroventral surface with one long bristle; first genital segment with a row of strong marginal bristles. Terminalia, fig. 4. Transvaal. . . . . *dingaani* sp. n.

(*b*) Descriptions of the New Species.

Sarcophaga vansoni sp. n.

Owing to the presence of a median pair of marginals on the second visible abdominal segment, this species is to be placed near *S. booersiana* Engel. Apart from the male terminalia it can be separated by the well-developed costal spine of the wing, a shorter third antennal joint and the three postsutural dorsocentral bristles only.

Male.—Head silvery-white pollinose; frons at the narrowest part about one-third of the longest eye-diameter, only slightly widened posteriorly, strongly widened to the antennae-groove; parafrontals reaching middle of the second antennal joint; inner vertical bristle present, outer wanting, 1 frontal and 1 pair longer ocellar bristles; antennae black, second segment with a long dorsal bristle, only one-fifth shorter in length than the third; palpi slender, slightly curved, totally black and beset with a number of bristles of different lengths.

Thorax cinereous pollinose, with the usual dark longitudinal stripes. Acrostichals 0 + 1, dorsoventrals 3 + 3, notopleurals 4, sternopleurals 3, scutellum with two pairs of long marginals only (laterals and subapicals), apical and discal scutellar bristles very weak. Propleura bare, posterior lateral margins of prosternum with a few fine hairs.

Wings hyaline, costal spine present, r_1 bare, r_{4+5} with setulae a little more than halfway to cross-vein on upperside, ventral side with a few hairs on the root of r_{2+3} and r_{4+5}, squama white with yellow margin. Halteres yellow-brown, more or less darkened to the tip.

Legs black, middle femora on the ventral side apically with a row of stout and short bristles, basally with 3–4 long bristles, hind femora with long and strong anteroventral bristles, hind tibia with short hairs only.

Abdomen with the usual black and whitish pattern, second visible tergite (tergite 3) with a pair of half-erected strong median bristles, hind margins of the third and fourth tergites with a few strong bristles. Both genital segments reddish, the first without

---

[1] Related to the following two new species is *S. batissa* Curran (1934 : 6, fig. 31) from the Belgian Congo, but it can easily be distinguished from them by the shape of the hypopygium. Curran's description does not enable one to find out further separating features.

marginal bristles. Cerci relatively stout but pointed, phallosome broad, with a tulip-shaped protrusion and terminally with a pair of finger-like appendages (fig. 1).

Length.—9–12 mm.

Female.—Unknown.

FIG. 1.—*Sarcophaga vansoni* sp. n. (*a*) Lateral view of the male terminalia; (*b*) frontal view of cerci.

Locality.—14 ♂♂ from Stellenbosch, Cape Province, x and xi.1925, leg. Dr. Brauns (holotype ♂ and 8 paratypic ♂♂ in the Transvaal Museum, Pretoria; 5 paratypic ♂♂ in the Collection of the South African Institute for Medical Research, Johannesburg). The species is named in honour of Dr. S. van Son, Entomologist at the Transvaal Museum, Pretoria.

Sarcophaga muspratti sp. n.

A striking species, having orange-coloured antennae and palpi; furthermore, only the last two postsutural dorsocentrals are developed.

Male.—Head with light-yellow parafrontalia and parafacialia, the other parts white pollinose; frons at the narrowest part about one-third of the longest eye-diameter, frontal stripe black, at the ocellar triangle as wide as one parafrontalium, similarly diverging to the antennae-groove, being here twice as wide as at the ocelli; parafrontals reach the hind margin of the second antennal joint, inner vertical bristle present, outer wanting, one frontal bristle each, but no longer outstanding pair of ocellar bristles; antennae yellow-orange, second joint with some short black bristles and a long one, third joint about two and a half times as long as the second, palpi orange, slender, slightly curved and not dilated apically, with short black bristles above and long ones ventrally. Buccae densely beset with white hairs.

Thorax cinereous pollinose, with five black longitudinal stripes. Acrostichals 0 + 1, presutural dorsocentrals indistinct, postsutural 2, notopleurals 4, sternopleural 3, scutellum

with two pairs of long marginals, one pair of apicals and one pair of discals. Propleura bare, posterior lateral margins of prosternum with a few fine hairs.

Wings hyaline, costal spine wanting, r_1 bare, r_{4+5} with setulae a little more than halfway to cross-vein on upperside, ventral side with a few hairs on the root of r_{2+3} and r_{4+5}, squama white with the margin narrowly yellow, halteres yellow.

Legs black, first tibia with one posteroventral median bristle, middle femur ventrally with a row of stout spines which gradually become longer to the basal part, hind femur with a row of strong anteroventral bristles, hind tibia with two long antero-dorsal and two posterodorsal bristles; ventral side in the basal half densely beset with fine hairs, a few of them being a little longer than the tibial diameter.

Abdomen greyish pollinose, the dark pattern consists of a narrow middle-stripe and a triangular spot on each side of second to fourth visible segment. Second segment without median marginals, hind margins of the following two segments with a few strong bristles. Both genital segments reddish, the first without stronger marginal bristles. Cerci on the dorsal side with a notch, similar to *S. haemorrhoidalis*; phallosome complicatedly contructed, with four pairs of appendages, the terminal ones shaped like a ploughshare (fig. 2).

Length.—15 mm.

Female.—Unknown.

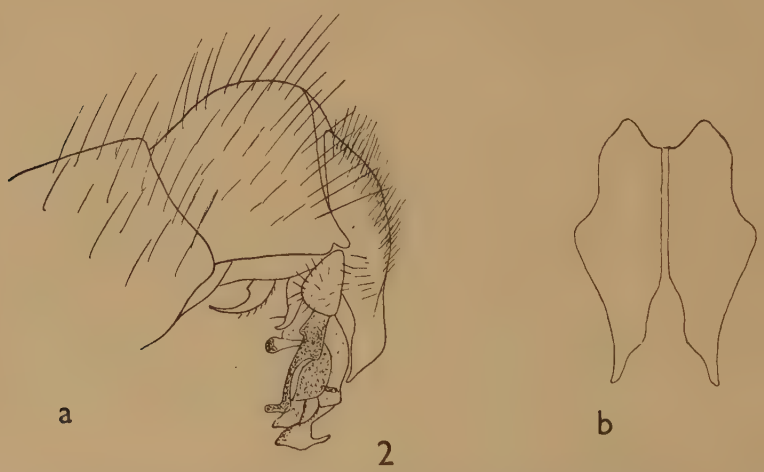


FIG. 2.—*Sarcophaga muspratti* sp. n. (*a*) Lateral view of the male terminalia; (*b*) frontal view of cerci.

Locality.—1 ♂ caught by Mr. Muspratt, Johannesburg, in a hotel room in Durban, Natal, 23.i.1950. Type in the Collection of the South African Institute for Medical Research, Johannesburg.

Sarcophaga demeilloni sp. n.

This species, like the following species to be described, is characterized by three pairs of well-developed postsutural dorsoventral bristles. In the male terminalia it shows some similarity to the Indian *S. caudagalli* Böttcher. *S. demeilloni* is easily separated from S. *dingaani* by the features given in the key.

Male.—Head silvery-white pollinose; frons about one-fourth of the longest eye-diameter, strongly widened in front, slightly posteriorly; one pair of inner verticals, one

of frontals, one of ocellars, parafrontals reaching middle of second joint; antennae deep black, third joint only one and a half times as long as the second; palpi black, slightly curved and dilated terminally.

Thorax cinereous pollinose, with the usual dark longitudinal stripes. Acrostichals 0 + 1, dorsocentrals 3 + 3, all well developed and of nearly equal length, notopleurals 4, the first and third bristles at most half as long as the other two, sternopleurals 3, scutellum with four pairs of bristles, basal scutellars and subapical scutellars long and strong, discals and apicals thinner and shorter, the latter crossed. Propleura bare, prosternum haired.

Wings hyaline, veins brown, costal spine present, r_1 bare, r_{4+5} on upperside beset with a few setae nearly reaching cross-vein, on the ventral side with one seta on the root of r_{2+3} and r_{4+5}; squama yellowish. Halteres brown.

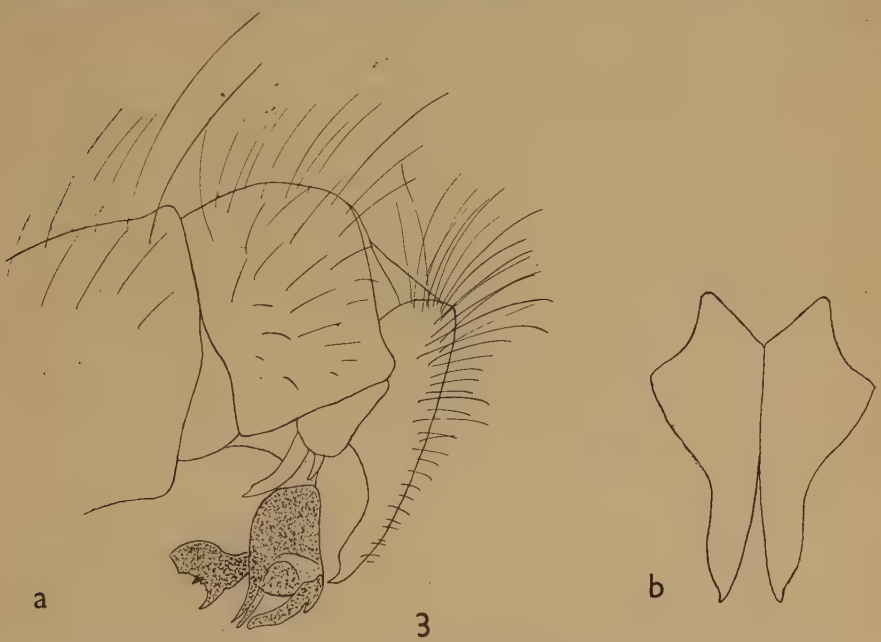


FIG. 3.—*Sarcophaga demeilloni* sp. n. (*a*) Lateral view of the male terminalia; (*b*) frontal view of cerci.

Legs black, middle femora with a row of anteroventral bristles, hind femora with strong anteroventral bristles, hind tibiae without fringe of long hairs, on the anteroventral lower half with two long and strong bristles except the apical one.

Abdomen with the usual black and whitish pattern, second visible tergite (third tergite) without median bristles, hind margins of the third and fourth tergites with a few erected strong bristles. Fifth sternite bipartite, densely beset with short bristles. First genital segment dark brown, with fine hairs only, second one red. Cerci fairly stout, phallosome strongly sclerotized in the terminal part, with three pairs of slender appendages and a big flower-like protuberance above them (fig. 3).

Female.—Unknown.

Length.—9 mm.

Locality.—1 ♂ caught on a "Koppie" in the outskirts of Johannesburg, Transvaal, 5.xii.1949. This species is respectfully dedicated to Dr. B. de Meillon, Chief Entomologist at the South African Institute for Medical Research, Johannesburg. Type in the Collection of the same Institute.

Sarcophaga dingaani sp. n.

This species, like *S. demeilloni*, is characterized by three pairs of long post-sutural dorsocentral bristles, but the first genital segment of the male is black and has a row of strong marginal bristles. Furthermore, the frons is wider and the posterior tibia shows only one anteroventral bristle.

Male.—Head yellowish pollinose; frons at the narrowest part nearly one-half of the longest eye-diameter; parafrontalia wider than in *demeilloni*, frontal stripe black, slightly widened to the antennae groove, outer and inner verticals present, but the former shorter, one pair of frontals and one pair of long ocellars, parafrontals reaching middle of second joint; antenna deep black, third joint twice as long as the second; palpi black, relatively broad and rather club-shaped apically.

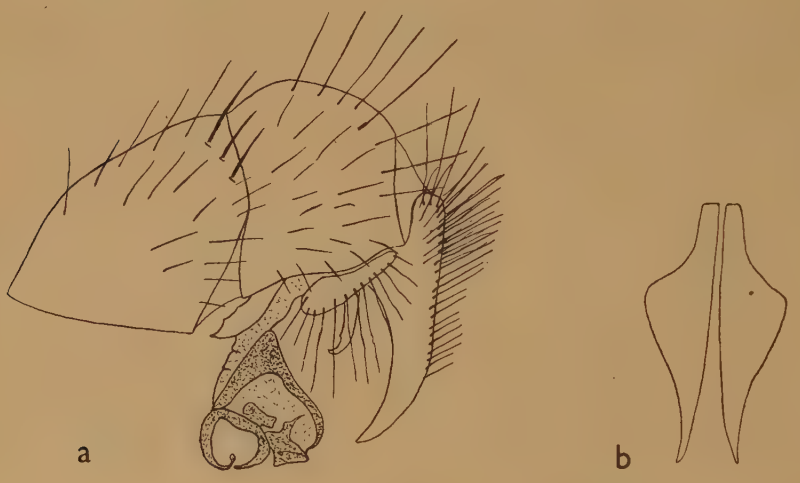


FIG. 4.—*Sarcophaga dingaani* sp. n. (*a*) Lateral view of the male terminalia; (*b*) frontal view of cerci.

Thorax olive pollinose, with the usual five black, longitudinal stripes. Acrostichals 0 + 1, but only weakly developed, dorsocentrals 3 + 3, notopleurals 4, sternopleurals 3, scutellum with four pairs of bristles including the weaker discals. Propleura bare, prosternum with a few fine hairs.

Wings hyaline, veins yellow, costal spine present, r_1 bare, r_{4+5}, with a row of setae in the basal part, nearly reaching cross-vein, on the ventral side with a few hairs on the root of r_{2+3} and r_{4+5}, squama whitish, with yellow margin, halteres light brown.

Legs black, middle femora without distinct comb, with a few shorter bristles only, hind tibia without fringe of hairs, on the posterior ventral side some hairs which just reach the tibial diameter on the anteroventral lower half with one long and strong bristle.

Abdomen black and olive tesselated, second visible segment without median bristles, hind margins of the third and fourth tergites with a few erect strong bristles. Fifth sternite V-shaped, with a brush of short and stout bristles. First genital segment black, hind margin with 6 strong bristles, second segment red. Cerci slender and sharply pointed; phallosome stout, terminally with two pairs of crescent-like protrusions which are directed to each other, and a third shoe-like pair behind it (fig. 4).

Length.—8 mm.

Locality.—1 ♂ from the same koppie in Johannesburg as *S. demeilloni*, 26.xii.1949. Type in the Collection of the South African Institute for Medical Research, Johannesburg.

This species is named in memory of the 16th December, 1837, when the Voortrekkers defeated the Zulu king, Dingaan.

(II) *Sarcophaga regularis* group.

Distinguishing features.—First wing vein bare; propleura bare; posterior tibia densely villous or at least with very long hairs; second visible abdominal segment without a pair of long bristles; posterior femur without anteroventral bristles.

(*a*) Key.

S. langi Curran is only known to me from the description.

1 (4) Posterior and middle tibiae with a dense brush of very long hairs, being longer than the tibial diameter . . . . . 2.

2 (3) Wing veins dark brown; anterior part of prosternum bare; posterior half of buccae densely beset with white hairs; parafacialia yellow tomented, all three sternopleural bristles thick, of equal strength. Cerci strongly curved, with an angle in the middle of the outer margin. Terminalia Engel, 1924, fig. 4. Cape Province . . . . . *braunsi* Engel.

3 (2) Wing veins yellow-orange; anterior part of prosternum with some fine hairs, posterior half of buccae with mostly black hairs which are strikingly dense; parafacialia silvery tomented; only two sternopleural bristles well developed, the third not or only a little stronger than the surrounding hairs. Cerci nearly straight, without angle. Terminalia Engel, 1924, fig. 10. Cape Province . . . . . *regularis* Wiedmann.

4 (1) Posterior tibia only with long hairs, the middle tibia with hairs not longer than the tibial diameter . . . . . 5.

5 (6) Prescutellar bristles absent. Cerci strongly curved. Terminalia Curran, 1923, fig. 25. Central and South Africa, Madagascar . . . . . *falciforceps* Villeneuve.

6 (5) Prescutellar bristles present. Cerci not strikingly curved, more or less straight . . . . . 7.

7 (8) Fifth sternite with a comb of short and stout spines. Phallosome strongly broadened terminally, with two pairs of spinuliforme appendages, fig. 5. Natal . . . . . *subdistinguendus* sp. n.

8 (7) Fifth sternite with short and fine hairs only. Phallosome slender, with shoe-shaped appendages. Terminalia Curran, 1934, fig. 5. Belgian Congo . . . . . *langi* Curran.

(*b*) Description of the New Species.

Sarcophaga subdistinguendus sp. n.

A species nearly related to *S. langi* Curran (1934), but easily to be recognized in the male sex by the shape of the phallosome. Furthermore, the fifth sternite is provided with a comb of stout spines, whereas Curran mentions that his species has the inner edges " with short, rather fine hairs " only. The first genital segment has a row of strong bristles apically—a feature not mentioned in Curran's description.

Male.—Head silvery-white pollinose; frons at the narrowest part one-third of the longest eye-diameter, strongly widened in front, slightly widened posteriorly; parafrontals nearly reaching the hind margin of the second joint of antennae; inner vertical bristle present, outer wanting, 1 frontal bristle, 1 pair of long ocellar-bristles; antennal segments 1 and 2 black, the latter with a narrow red terminal edge, third segment one and a half times as long as the second, dark brown, but with grey dusting; palpi slender, slightly curved, black.

Thorax cinereous pollinose, with the usual dark longitudinal stripes. Acrostichals 0 + 1, dorsocentrals 2–3 + 4 of variable size, the anterior postsutural bristles very much weaker than the posterior, the last strikingly long; notopleurals 4, but 1 and 3 shorter and thinner than 2 and 4, sternopleurals 3, scutellum with three distinct pairs of bristles, two strong lateral and one pair of weak and crossed apical bristles, the discals indistinct. Propleura and prosternum bare.

Wings hyaline, r_1 bare, r_{4+5} with setulae a little more than half-way to cross-vein on upperside, ventral side with a few hairs on the root of r_{2+3} and r_{4+5}, squama in general white, but the disc tinged with brown. Halteres reddish yellow.

Fig. 5.—*Sarcophaga subdistinguendus* sp. n. (*a*) Lateral view of the male terminalia; (*b*) frontal view of cerci.

Legs black, middle femora with a row of stout bristles, the anteroventral edge of the hind femora with an apical bristle, otherwise only beset with long fine hairs, hind tibiae with a fringe of long hairs.

Abdomen with the usual black and whitish pattern, second visible tergite (tergite 3) without median bristles, hind margins of the third and fourth tergites with a few erect strong bristles. First genital segment red to dark brown, apically with a row of about 10 strong bristles. Second segment red. Cerci relatively stout and bluntly pointed, phallosome strongly broadened posteriorly, with one pair of likely oval plates provided with two teeth each. In front of these plates are two pairs of spinuliforme appendages (fig. 5).

Length.—7–8 mm.

Locality.—4 ♂♂, from Mkusi, Indunagazi, Natal; 31.i.1947, leg. R. H. K. Munro. Holotype and one paratype in the Entomological Department, Pretoria, 2 ♂♂ in the collection of the South African Institute for Medical Research, Johannesburg.

(III) *Sarcophaga erecta* group.

Distinguishing features.—First wing vein bare; propleura bare; posterior tibia villous or with long hairs surpassing the tibial diameter; second visible abdominal segment with a pair of long, usually erect, median bristles.

(*a*) Key.

The following species are known to me only from the descriptions: *S. vicaria* Curran, *S. villa* Curran and *S. chapini* Curran.

Sarcophaga erecta Ho (1934) is preoccupied by *S. erecta* Engel (1924). Therefore the synonym *herve-bazini* Séguy (1934, *Encycl. Ent.* (B) II, 7 : 26) becomes valid.

1 (2) Both genital segments totally black. Median marginals on the second visible abdominal segment short, sometimes indistinct or wanting, so that this species is to be mentioned in the *hirtipes*-group, too. Terminalia Engel, fig. 13. Cape Province, on sea-shore only . . . . . *maritima* Engel.
2 (1) At least the second genital segment reddish brown, the first may be more or less darkened . . . . . 3.
3 (4) As a rule, two sternopleurals developed only, if there are three present, one is weak and placed below the strong anterior. Terminalia Curran, 1934, fig. 22. Belgian Congo . . *vicaria* Curran.
4 (3) Three strong sternopleurals developed and placed in one almost straight line . . . . . 5.
5 (6) Presutural acrostichals conspicuous, but not much more than twice as long as the stout hairs; prescutellars as long as the scutellum. Terminalia Curran, 1934, fig. 17. S. Rhodesia, Natal *villa* Curran.
6 (5) Presutural acrostichals wholly undifferentiated, prescutellars rarely more than half as long on the scutellum . . . . . 7.
7 (8) Apical scutellars wanting. Terminalia Curran, 1934, fig. 34. Belgian Congo . . . . . *chapini* Curran.
8 (7) Apical scutellars present . . . . . 9.
9 (10) Third antennal joint short, only one-fifth longer than the second. Terminalia fig. 6. Natal . . . . . *zuluensis* sp. n.
10 (9) Third antennal joint about twice as long as the second . . . 11.
11 (12) Costal spine wanting; wings brownish, posterior border cinereous, squama brown, too. Body yellow-brownish dusted. Terminalia Curran, 1934, fig. 28. Liberia, Cameroons . . . *liberia* Curran.
12 (11) Costal spine distinct, but short; wings hyaline or only weakly tinged. Body silvery-white dusted . . . . . 13.
13 (14) Discal cross-vein with a small brown cloud. Three postsutural dorsocentral bristles of equal length. Terminalia Curran, 1934, fig. 30. Liberia, Cameroons, Belgian Congo . . *samia* Curran.
14 (13) Discal cross-vein without cloud. Four postsutural dorsocentral bristles which become shorter to the suture. Terminalia Engel, 1924, fig. 12. Cape Province, Basutoland, Transvaal . *erecta* Engel.

(*b*) Description of the New Species.

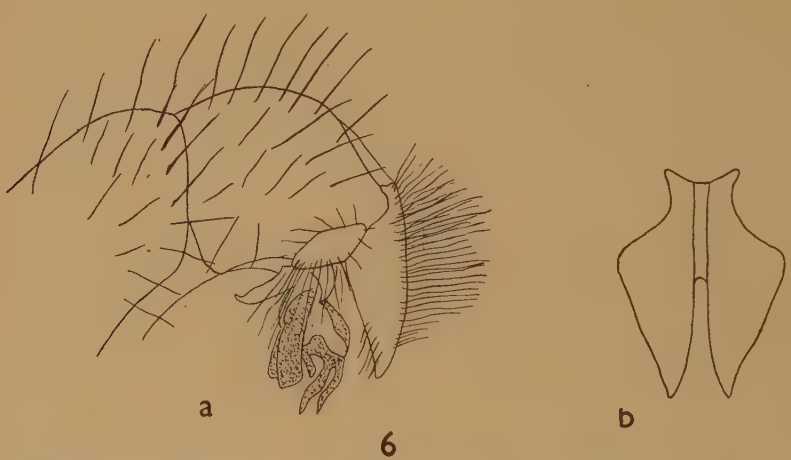
Sarcophaga zuluensis sp. n.

This species is characterized by the strikingly short third antennal joint. In other respects it mostly looks like *S. erecta* Engel.

Male.—Head silvery-white pollinose ; frons at the narrowest part about one-fourth of the longest eye-diameter, slightly widened posteriorly, strongly widened to the antennae groove ; frontal stripe black at the ocellar triangle, a litle narrower than in front ; parafrontals reach the base of the second antennal joint, inner vertical bristle present, outer wanting, ocellar bristles long, no frontals ; antennae black, second joint with a long bristle, third joint only one-fifth longer than the second ; arista with relatively short hairs ; palpi thin, a little curved, totally black ; buccae sparsely blackish haired and white dusted ; post-buccae longer and whitish haired.

Thorax cinereous pollinose, with the usual black stripes. Acrostichals wanting ; presutural dorsocentrals 4, but indistinct, not much stronger than the surrounding hairs, postsutural 5, of which the first two behind the suture are as indistinct as the presuturals ; notopleurals 4, but the first and third weak ; sternopleurals 3 ; scutellum with four pairs of bristles ; apicals and discals thin. Propleura and prosternum bare.

Wings hyaline, costal spine very small, r_1 bare, r_{4+5} on the upperside with setulae half way to cross-vein, on the ventral side with a few hairs on the root of r_{2+3} and r_{4+5}, squama white, halteres yellow.



6

FIG. 6.—*Sarcophaga zuluensis* sp. n. (*a*) Lateral view of the male terminalia ; (*b*) frontal view of cerci.

Legs black, middle femora on the ventral side apically with a row of bristles, basally with a few long and thin hairs, hind femora without anteroventral bristles, only beset with hairs, hind tibia a little curved, on both edges of the inner side with long hairs, which are partially three times as long as the tibial diameter.

Abdomen greyish pollinose, with black spots changing from different views. Second segment with a pair of long median marginals, hind margins of the following two segments with a few stronger bristles. Fifth sternite with a comb of stout spines. First genital segment darkened in the anterior part, red-brown terminally, near the margin with a few hairs being a little thicker than the surrounding ones, but they do not represent real bristles ; second genital segment totally red-brown. Cerci stout, phallosome globular with three pairs of appendages (cf. fig. 6).

Length.—12 mm.

Female.—Unknown.

Locality.—1 ♂ from the Hluhluwe Game Reserve, Zululand, 18.i.1950, leg. Zumpt. Type in the Collection of the South African Institute for Medical Research, Johannesburg.

(IV) Catalogue of the *Sarcophaga* species discussed in this paper.

(1) *adusta* Engel, 1938, *Arb. morph. taxon ent.* **5** : 21.
(2) *batissa* Curran, 1934, *Amer. Mus. Nov.* **727** : 6.
(3) *binodosa* Curran, 1934, *Amer. Mus. Nov.* **727** : 7.
(4) *booersiana* Engel, 1924, *Bull. Soc. R. ent. Egypte* **8** : 341.
(5) *braunsi* Engel, 1924, *Bull. Soc. R. ent. Egypte* **8** : 319.
(6) *chapini* Curran, 1934, *Amer. Mus. Nov.* **727** : 10.
(7) *demeilloni* sp. n.
(8) *dingaani* sp. n.
(9) *erecta* Engel, 1925, *Bull. Soc. R. ent. Egypte* **8** : 335.
(10) *falciforceps* Villeneuve, 1929, *Rev. Zool. Bot. afr.* **17** : 250. Curran, 1934, *Amer. Mus. Nov.* **727** : 13.
(11) *fasciventris* Curran, 1934, *Amer. Mus. Nov.* **727** : 7.
(12) *langi* Curran, 1934, *Amer. Mus. Nov.* **727** : 12.
(13) *liberia* Curran, 1934, *Amer. Mus. Nov.* **727** : 11. Engel, 1938, *Arb. morph. taxon. Ent.* **5** : 19.
(14) *maritima* Engel, 1924, *Bull. Soc. R. ent. Egypte* **8** : 338.
(15) *muspratti* sp. n.
(16) *nodosa* Engel, 1924, *Bull. Soc. R. ent. Egypte* **8** : 324.
(17) *regularis* Wiedemann, 1830, *Ausser. Zweifl. Ins.* **2** : 357.
(18) *samia* Curran, 1934, *Amer. Mus. Nov.* **727** : 11. Engel, 1938, *Arb. morph. taxon. Ent.* **5** : 19.
(19) *subdistinguendus* sp. n.
(20) *vansoni* sp. n.
(21) *vicaria* Curran, 1934, *Amer. Mus. Nov.* **727** : 9.
(22) *villa* Curran, 1934, *Amer. Mus. Nov.* **727** : 9.
(23) *zuluensis* sp. n.

References.

Böttcher, G., 1912–1913, Die männlichen Begattungswerkzeuge bei dem Genus *Sarcophaga* Meig. und ihre Bedeutung für die Abgrenzung der Arten. *Dtsch. ent. Z.* **1912** : 525–544, 705–776 ; **1913** : 1–16, 115–130, 239–254, 351–377.

Curran, C. H., 1934, Sarcophaginae of the American Museum Congo Expedition (Diptera). *Amer. Mus. Nov.* **727**, 26 pp.

Enderlein, G., 1928, Klassifikation der Sarcophagiden. *Arch. klass. phylog. Ent.* **1** : 1–56.

Engel, E. O., 1924, Some new South African *Sarcophaga* (Dipt.) *Bull. Soc. ent. Egypte* **9** ; 314—342.

Engel E. O., 1938, Von Dr. Zumpt in Kamerun gessamelte Sarcophagiden. *Arb. morph. taxon. Ent.* **5** : 15–22.

Rohdendorf, B. B., 1937, Fam. Sarcophagidae. In : *Faune de L'URSS, Insectes, Dipt.* **19**, *No.* 1. xv + 510 pp.

Séguy, E., 1941, Etudes sur les Mouches Parasites, II. Calliphorides. Calliphorines (*suite*), Sarcophagines et Rhinophorines de l'Europe occidentale et méridionale. *Encycl. Ent.* **21**. 436 pp.

Senior-White, R., Aubertin, D., and Smart, J., 1940, Calliphoridae. In : *Fauna of British India, Diptera,* **6**. 288 pp.

A SECOND NEW ZEALAND STICK-INSECT (PHASMATODEA) ESTABLISHED IN THE BRITISH ISLES.

By B. P. Uvarov, C.M.G., D.Sc., F.R.S., F.R.E.S.

The presence in the Scilly Isles of *Acanthoxyla prasina* (Westwood), a stick-insect accidentally introduced from New Zealand, and now established in this country, has been recorded by me (Uvarov, 1944, *Proc. R. ent. Soc. Lond.* (B), **13** : 94–96, 1 fig.).

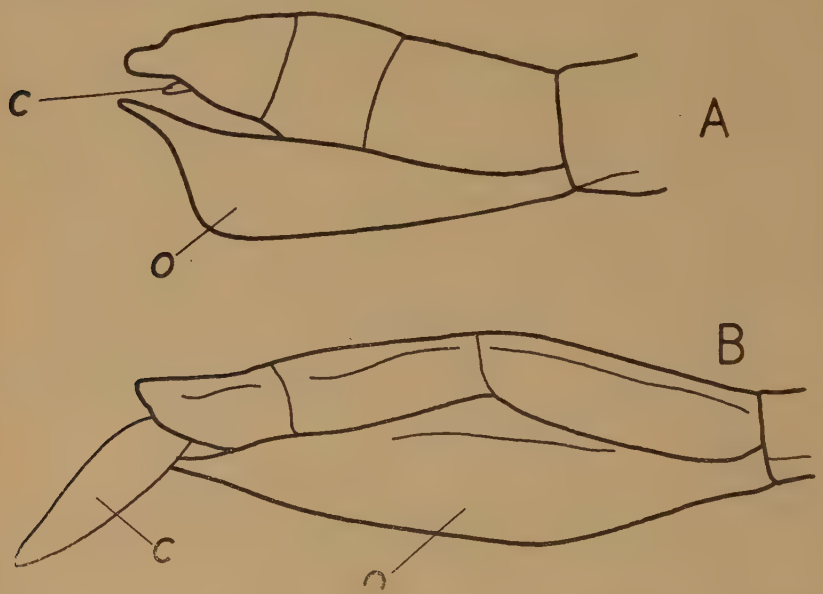


Fig. 1.—End of female abdomen, side view in A, *Carausius morosus* Br. ; B, *Clitarchus laeviusculus* Stål ; *o*, operculum ; *c*, cercus.

Major A. A. Dorrien-Smith, D.S.O., who provided the specimens of *A. prasina* and the evidence proving its established British status, has now sent me two specimens of another stick-insect, again found in the gardens of Tresco Abbey, Scilly Isles, by his gardener. One of these specimens was exhibited by me at the meeting of the Royal Entomological Society of London on 5th October, 1949 (*Proc. R. ent. Soc. Lond.* (C), **14** : 32).

Both specimens, now placed in the British Museum collection, are adult females, and they agree in every detail with the original description of *Clitarchus laeviusculus* Stål (1875, *Rec. Orth.*, **3** : 82) from New Zealand. They also agree with the re-description of that species by Brunner von Wattenwyl (1906, *Insektenfam. Phasm.* : 236), except that they have no distinct pair of tubercles between the eyes ; no such tubercles are mentioned by Stål, and our specimens have only some very small and indistinct ones. It is probable that this character has no taxonomic value.

Dr. J. T. Salmon, of the Victoria University College, Wellington, New Zealand, has kindly sent me two females of a species considered by him *C. hookeri* (White), which, in his opinion, is identical with *C. laeviusculus* St., but

the type of *C. hookeri* in the British Museum has the femora strongly serrated. According to Dr. Salmon this is a variable character and the two forms intergrade. Since New Zealand Phasmids are the subject of a forthcoming monograph by Dr. Salmon, it is not appropriate to discuss here a synonymic problem, and the insect introduced into this country should be called, for the time being, *Clitarchus laeviusculus* Stål.

This species can be at once distinguished from the Prickly Stick-insect (*Acanthoxyla prasina* Westwood) by the complete absence of spines on its body. It is, at first glance, somewhat similar to *Carausius morosus*, the stick-insect commonly bred in captivity in this country, but differs by its larger size (total body length of a female is some 80 mm., or about 3 inches), by the presence of an interrupted black median dorsal line (which probably, is not a constant character), and especially by the structure of the end of the female abdomen, with long lanceolate cerci (fig. 1B). Both British specimens are females, and it is probable that the species is parthenogenetic.

The established status of *C. laeviusculus* in the Scilly Isles cannot be doubted, since Major Dorrien-Smith has sent me, on previous occasions, some young nymphs of a non-prickly Phasmid from his garden, which can now be referred to *C. laeviusculus*.

Book Notices

Collecting Butterflies and Moths. By Ian Harman. 8vo. London (Williams & Norgate, Ltd.), 1950. Pp. 128, 23 photographs, 16 text-figs. Price 7s. 6d.

A pocket book for the guidance of the beginner in collecting. After a general introduction, collecting equipment is described, followed by chapters on setting and on care of the collection. Notes on rearing include construction of cages, sleeving, handling of hibernating larvae and of pupae, and choice of foodplants. Day and night collecting are treated separately, and include advice on how to handle a net and how to extract the insect from it, and on beating and sweeping. There is a chapter on varieties, and one on collecting Microlepidoptera. Finally, an entomological calendar summarizes collecting activity in each month of the year.

Guide to British Insects : an aid to identification. By B. D. Moreton. Sm. 8vo. London (Macmillan & Co.), 1950. Pp. vi + 188, 96 figs. Price 8s. 6d.

Intended to enable agriculturists, farmers and gardeners to run down an insect (adult or early stage) into its Order, and perhaps to guess at its family. An introductory section reviews structure and terminology of parts, and gives an account of metamorphosis with figures of a number of larvae.

Instructions are given on how to use a Key, followed by a Key to Orders, which includes early stages as well as adults. Each Order is then summarized in turn, with the headings : Recognition ; Metamorphosis ; Some features of Appearance, and with a few words on habits. In the bigger Orders there are short notes on the more prominent families.

Many of the figures are half-tone, the rest line. Most are composite, so that several hundred different adults and early stages are figured. A list is given of " Books for further Reading."

NEW SPECIES OF FIJIAN PSYCHODIDAE (DIPTERA).

By G. H. Satchell.

(Department of Zoology, University of Otago, Dunedin, New Zealand.)

The high mountainous islands of Fiji have a heavy rainfall and a high temperature (Suva, 134 in./year, 76·9° F.), and are clothed with tropical rain forest. The humidity is continuously high and there are many permanent streams and rivers. There are thus many semi-aquatic and marginal types of habitat both of a temporary and a permanent nature, and it is to such habitats that the Psychodidae as a family are primarily adapted. The family is well represented in the Fiji Islands, but only three species have so far been described (Edwards, 1928). A short visit recently has enabled me to collect a further four new species, whilst a fifth was found amongst some undescribed material kindly lent by the British Museum. Two described species, new to Fiji, were also collected, making a total of ten species now known to occur there. In this paper the new material will be described and a check list included at the end. Types and paratypes will be deposited in the British Museum, whilst some additional material will remain in my collection. As the majority of specimens have been collected by myself, I have only included the collector's name after those specimens collected by some other person. All the localities mentioned are on the island of Viti Levu, the larger of the two main islands of the Fiji group.

In the descriptions I have incorporated two characters, the spermathecae and the length of the ovipositor, which have hitherto received little attention in the subfamily Psychodinae. The length of the ovipositor will be compared with the length of the subgenital plate and this structure should be measured from the sclerotized band, which demarcates it proximally, to the tips of the distal lobes.

Telmatoscopus vitiensis[1] sp. n.

A mealy-coloured species with the wings blackish on the under surface and white rings on the legs.

♂. Wing length 2·4 mm.

Brownish-black tuft on face paling to whitish between antennae; covering of vertex long and white. Eye bridges separated by width of one and a half facets, antennae 16-segmented, one and a half times as long as width of wing; flagellar verticils greyish and open, scape and pedicel covered with dark scales; scape one and a half times as long as broad,

[1] *vitiensis*—living on the island of Viti-Levu, the larger of the two main islands of Fiji.

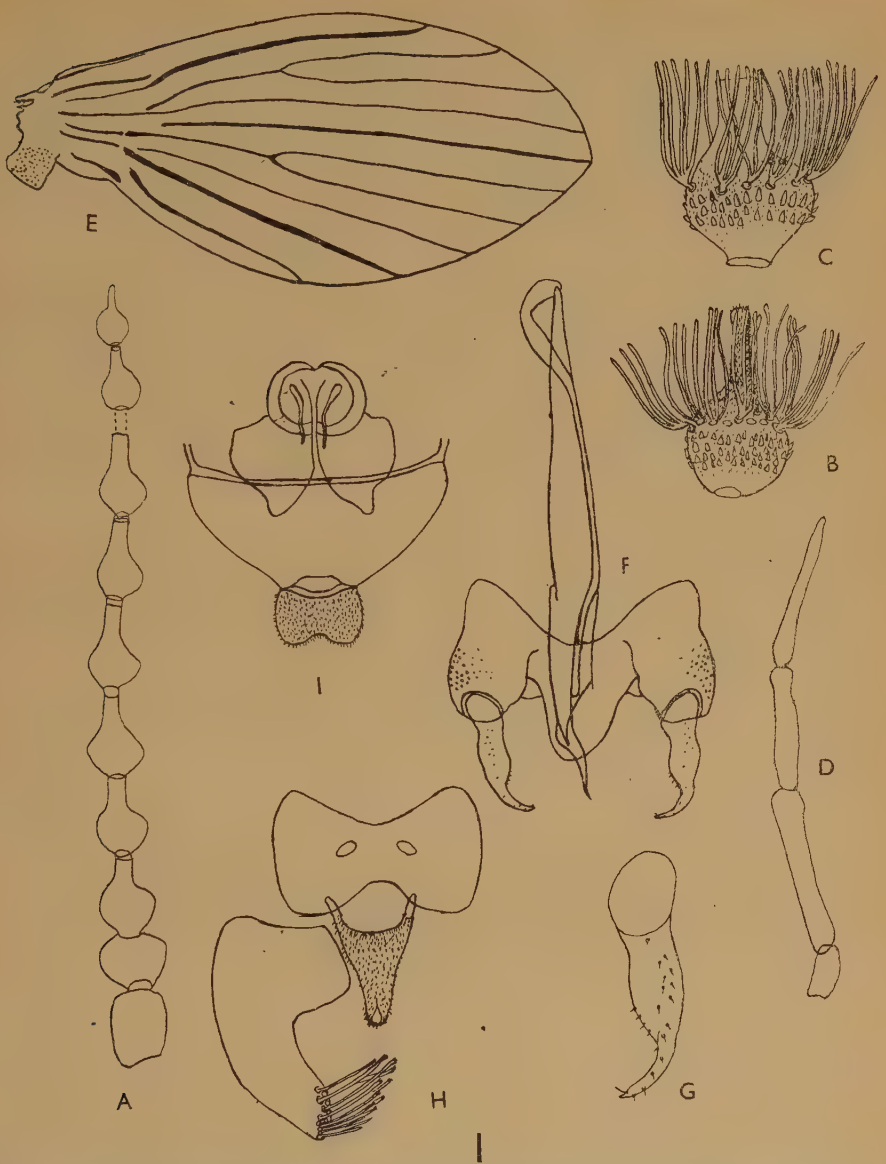


FIG. 1.—*Telmatoscopus vitiensis* sp. n. A, First eight and last two joints of antenna; B, terminal joint of antenna; C, first flagellar segment of antenna; D, maxillary palp; E, wing; F, hypopygium; G, style, enlarged; H, cercopod, ninth tergite and anal flap; I, subgenital plate and spermathecae.

pedicel wider than long, first flagellar segment with neck a little shorter than bulb, but equal to bulb in more distal segment (figs. 1A, 1C); bulb rather eccentric, terminal segment with an apiculous equal to length of bulb (fig. 1B). Ascoids 3–5-branched, numerous, arranged in a ring on each flagellar segment; paired sensory cones inserted above bases of ascoids (fig. 1C). Palpi with a covering of brownish black scaly hairs, formula 1 : 3·2 : 2·2 : 3 (fig. 1D).

Thorax with a dense covering of white hairs anteriorly, shading to hairs with whitish brown tips more posteriorly; vestiture distinctly brownish between the wings. Wing apex at tip of R_5, medial fork very little before radial fork (fig. 1E), both before tip of Cu; origin of R_{2+3} well before apex of first basal cell, which is distinctly longer than second; Cu not meeting M_4 at base; R_1, R_5 and M_4 distinctly thicker than other veins. Wing covering light brown with whitish hairs interspersed; a prominent white tuft on alula; rows of erect whitish hairs on basal fifth of R_1, on R_{2+3} up to the fork, less conspicuously on M_{1+2}, M_3 and Cu, up to the fork level. Scattered devaricate whitish hairs present generally, in distal half of wing, and forming distinct tufts just before tip of each vein, that of subcosta being largest; in addition a white tuft present on wing margin in each interveinal space. Darker brown tufts of erect hairs terminating each row of erect hairs, that on R_2 being almost at level of tip of R_1, the remainder being at level of forks; jointly appearing as a darkish fascia across wing. Dark tufts of devaricate hairs present at tip of each vein; fringe unicolorous, light brown with a pale reflection. Under surface of wing distinctly blackish, due to covering of blackish hairs, which are distinctly scaly over base of R and M; a patch of white scales present on posterior margin of wing base. Legs with a dense covering of black scales; conspicuous white mark at apex of femur, tibia and metatarsus; an additional white mark present at tip of second tarsal joint of first leg.

Abdomen with whitish brown vestiture basally, shading to brownish-black on segments 4 and 5, followed by white on segments 6 and 7, terminating with black over the genitalia. Hypopygium; coxites cylindrical (fig. 1F), style abruptly narrowing to a curved apex and bearing scattered small sensory hairs (fig. 1G); ejaculatory apodeme very long; aedeagus consisting of a short curved spike, surrounded by a tent-like sclerotized investment. Cercopods (fig. 1H) more than twice as long as 9th tergite, bearing 12 to 15 retinaculae, the longer proximal ones having fringed tips; anal flap elongate, almost half as long as cercopod.

♀. Antenna with flagellar segments much less swollen, bearing a single pair of 4 or 5-branched ascoids, except for terminal segment, which has six single curly ascoids in addition; verticils much less dense. Patch of white hairs on dorsum of abdomen rather more extensive, vestiture of body and wings otherwise identical with male. Subgenital plate small (fig. 1I) only slightly emarginate medially, spermathecae without reticulate pattern, shaped as in fig. 1I. Ovipositor short, only twice as long as subgenital plate.

Type: Fiji Islands: Botanical Gardens, Suva, 14.xii.1949.

Allotype: Fiji Islands: Botanical Gardens, Suva 30.i.1950.

Paratypes, 4 ♂, 1 ♀, collected same locality and same date as type; 3 ♂, 6 ♀, same date as paratype.

Other specimens, 2 ♂, 2 ♀, same locality and date as allotype, 1 ♂, same locality and date as type.

This species was found on two occasions crawling around the mouths of tree holes in the trunks of the Tahitian Chestnut, *Inocarpus edulis*. It was breeding in the water contained there, a habitat it shared with the common tree-hole breeding mosquito, *Aëdes scutellaris pseudoscutellaris* Theobald. Though a conspicuously decorated species when pinned, it is very elusive when alive, as the admixture of white and brown hairs on the wing gives a mealy colour which matches the bark.

Telmatoscopus inusitatus[2] sp. n.

A uniformly greyish species with a general facies of a *Psychoda*.

♂. Wing length 1·5 mm.

Prominent greyish tuft on face, irregular long greyish vestiture on vertex; eye bridges almost touching. Antennae almost twice as long as width of wing (7 : 4); 16-segmented,

[2] *inusitatus* L. — rare.

greyish with rather open verticils; basal flagellar segments with neck distinctly shorter than bulb, which is eccentric (fig. 2A), neck a little longer in more distal segments, terminal segment with a long apiculus (fig. 2B), ascoids consisting of paired strongly curved, thick processes arising close together on segments 3–15. Palpi with sparse greyish vestiture.

Thorax with long rather sparse greyish vestiture. Wing with apex between R_4 and R_5 (fig. 2C), radial fork very slightly nearer base than medial, both well before tip of Cu; wing vestiture uniformly greyish, apart from inconspicuous tufts of blackish erect hairs over the forks; fringe long and unicolorous; legs greyish, darker in certain lights.

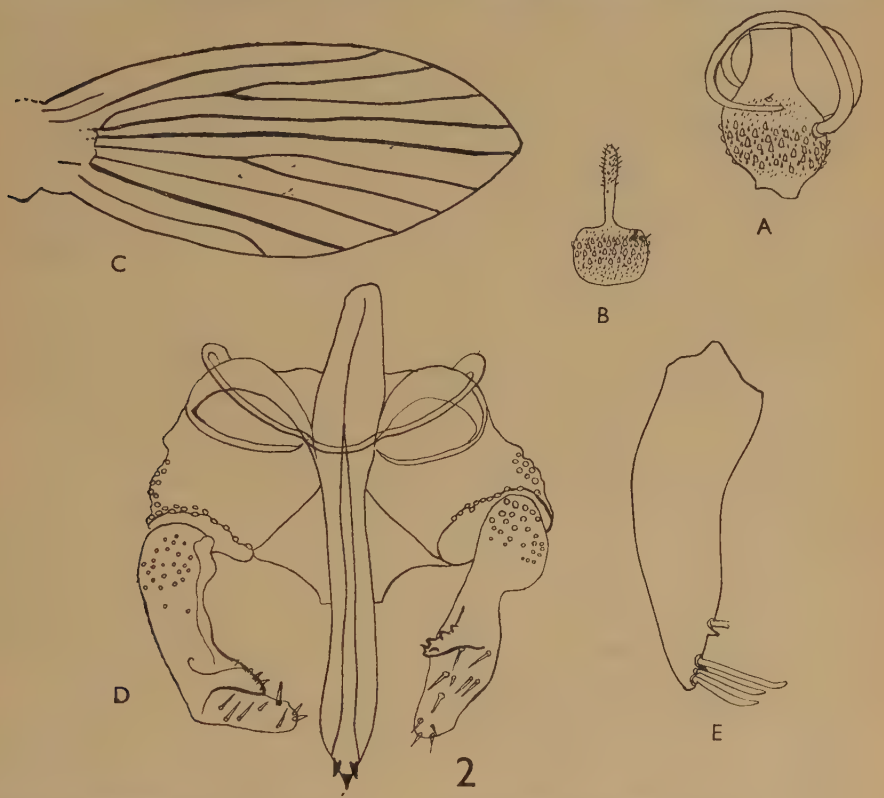


FIG. 2.—*Telmatoscopus inusitatus* sp. n. A, Basal flagellar segment of antenna; B, terminal segment; C, wing; D, hypopygium; E, cercopod.

Abdominal vestiture long, scanty and greyish. Hypopygium with coxite cylindrical; usual patch of hairs on outer side present, plus a ring of hairs inserted on margin of articulation of coxite with style (fig. 2D); style angulated half way along, a thumb-like protuberance bearing small teeth arising at this point; style flattened distally, bearing a number of short stiff sensory setae. Aedeagus symmetrical, elongate, armed with three small sclerotized teeth apically. Cercopods of moderate length (fig. 2E), not swollen basally, bearing three terminal retinaculae and a fourth one set a little more proximally.

Type and only specimen. FIJI IS.: On way to Korambamba from Lami, 14.xii.1949.

The specimen was taken crawling on rocks near a waterfall in dense tropical bush, on the way to the mountain of Korambamba. Though superficially very like a *Psychoda*, the antenna tip places it definitely in the above genus.

Psychoda infurcis[3] sp. n.

A small greyish species with incomplete forks.

♂. Wing length 1·2 mm.

Distinct tuft of greyish hairs on face and vertex; eye bridges separated by width of

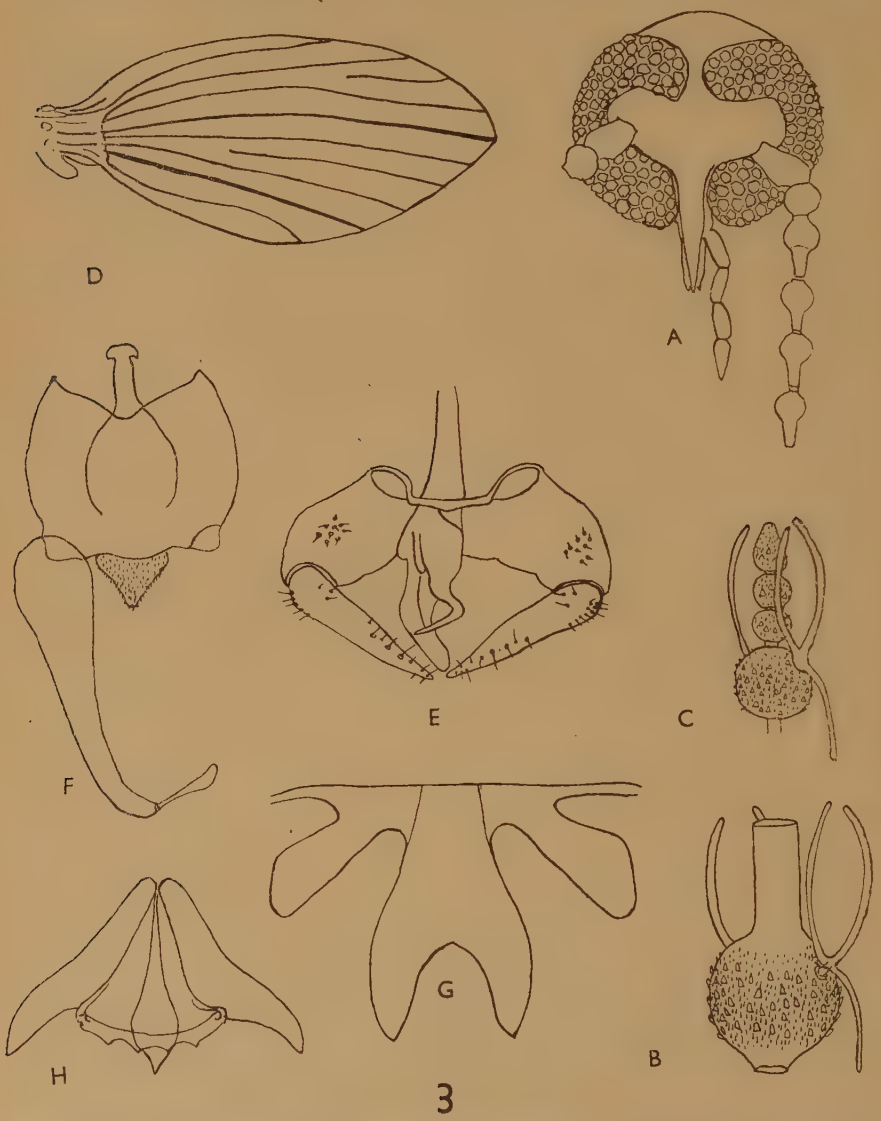


Fig. 3.—*Psychoda infurcis* sp. n. A, Head, showing palp and basal segments of antenna; B, fourth flagellar segment; C, tip of antenna; D, wing; E, hypopygium; F, cercopod, ninth tergite and anal flap; G, subgenital plate with adjacent lobes; H, spermathecae.

one facet, extending ventrally much further than usual so as to be separated ventrally by width of only two facets (fig. 3A); antenna 16-segmented, almost twice as long as

[3] *infurcis* L.—Without forks, referring to the wing venation.

width of wing; flagellum greyish, verticils closed, scape and pedicel with greyish scales; scape one and a half times as long as wide, pedicel subspherical, first flagellar segment with neck equal to bulb, a little longer (fig. 3B) in more distal segments; last three segments diminutive, distinctly separated, the terminal one longer than wide (fig. 3C). Ascoids paired, Y-shaped, on segments 3–13. Palpi short with greyish vestiture, segments subequal, terminal one conical (fig. 3A).

Thorax covered with greyish-brown hairs dorsally, with medial and lateral rows of shorter, whitish hairs interspersed. Wing (fig. 3D) with R_5 at apex, radial and medial forks incomplete, so that R_3 and M_2 are free at their inner ends; inner end of M_2 well before, and of R_3, well after, level of tip of Cu; first and second basal cells almost equal, R_{2+3} arising at apex of first basal cell, vestiture of wing greyish brown; erect hairs absent on R_5, M_2 and M_4; extending to tips of R_1, R_2, R_3 and Cu, and almost to tips of M_1 and M_3; fringe uniformly greyish brown. Legs greyish.

Abdomen with long rather sparse greyish-brown hairs. Hypopygium (fig. 3E); coxites cylindrical, one and a half times as long as broad, lateral hairy patch much reduced, consisting of only 10 or so hairs; style straight, conical, tapering to a blunt point with scattered sensory setae. Aedeagus with a curved hook-like element overlying a bluntly ending process; cercopod (fig. 3F) elongate, swollen basally, almost twice as long as ninth tergite, with a single retinaculum; anal flap in form of equilateral triangle.

♀. Similar to male; subgenital plate Y-shaped with paired lateral lobes lying alongside as in fig. 3G. Spermathecae without reticulate markings as in fig. 3H. Ovipositor short and curved, 1·7 times as long as subgenital plate.

Type, allotype and 3 ♂ Paratypes. Fiji Is.: Nausori, 16.xii.1949.

5 ♂, 9 ♀ paratypes. Cook Islands: Avarua, Rarotonga. 23.xii.1949, 27.xii.1949, 2.i.1950, 8.i.1950.

Specimens of this species were first seen and collected on the windows of the airport buildings at Nausori a few minutes before embarkation, so no opportunity to find its breeding grounds occurred. Later, on the island of Rarotonga, Cook Islands, this species was taken in abundance, flying in and out of tree holes filled with moist, vegetable debris. Subsequently it was noted again resting on deposits of cow dung, and when a one-pound sample of this medium was brought into the laboratory, it yielded many thousands of this species in the course of four days. In its capacity to breed in decaying vegetable material and in cow dung, it resembles the European *Ps. albipennis* Zett., though in the interrupted forks it more closely resembles the European *Ps. setigera* Tonn. and *Ps. brevicornis* Tonn.

Psychoda cochlearia[4] sp. n.

A small, dark, greyish-brown species with a 14-segmented antenna.

♂. Wing length 1·2 mm.

Small, light-greyish tuft on face, longer greyish-brown tuft between and around antennae bases; eye bridges separated by width of two facets. Antennae 14-segmented, almost twice as long as width of wing; flagellum greyish with closed verticils, scape and pedicel with greyish scales; scape one and a half times as long as broad (fig. 4A), pedicil subspherical, first flagellar segment with neck equal to bulb, distinctly longer than bulb in more distal segments; thirteenth with neck very short, fourteenth only half size of thirteenth, oval (fig. 4B); ascoids paired, Y-shaped, on segments 3 to 13. Palpi with segment 4 distinctly longer than other three, sparsely covered with greyish scales.

Thorax covered with vestiture of hairs, which are greyish basally and dark brown apically. Wing with R_5 at apex (fig. 4C); radial fork well beyond medial fork, but both

[4] *cochlear* L.—A spoon, referring to the aedeagus.

well before tip of Cu ; basal cells almost equal, origin of R_{2+3} at apex of first basal cell. Wing vestiture of dark brown hairs with a lighter reflection ; erect hairs absent on R_5, M_2 and M_4 ; present on all remaining veins right to the tip ; densely arranged near wing base ; fringe unicolourous. Legs with dark greyish-brown vestiture.

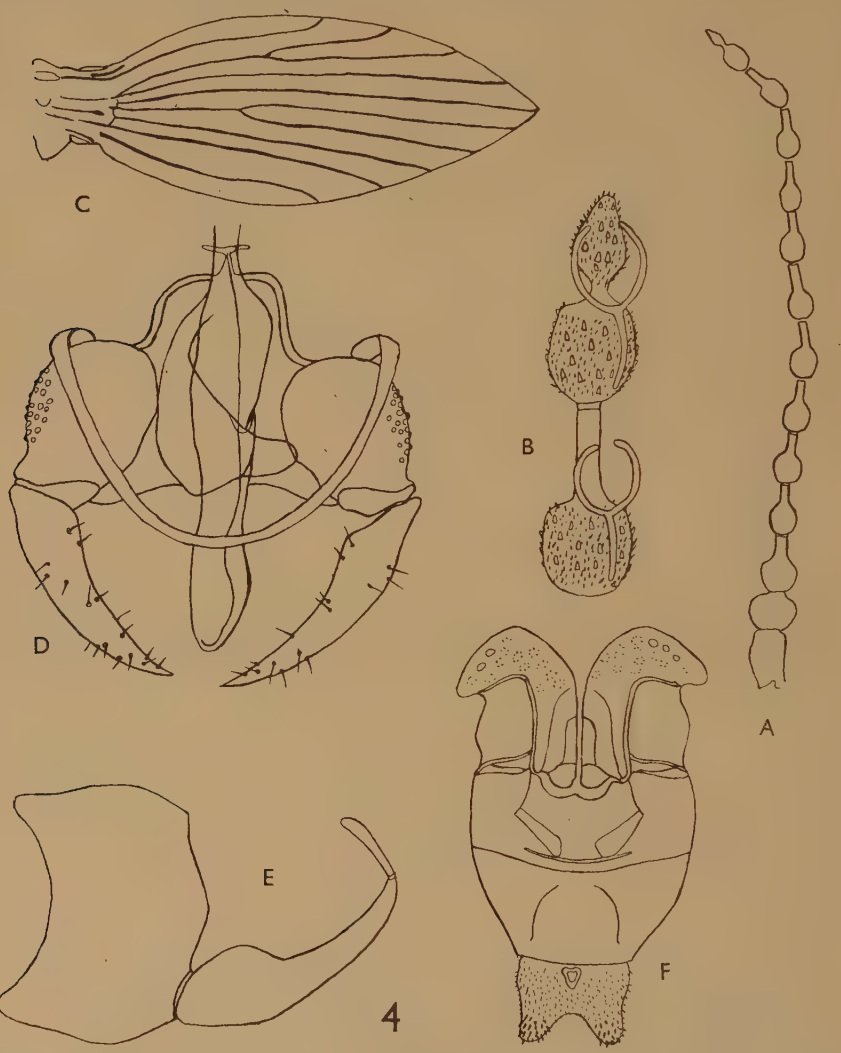


FIG. 4.—*Psychoda cochlearia* sp. n. A, Complete antenna ; B, terminal joints, enlarged ; C, wing ; D, hypopygium ; E, cercopod and ninth tergite, drawn at only half the magnification of D ; F, subgenital plate and spermathecae.

Hypopygium (fig. 4D), coxite only a little longer than wide, bulging laterally, style evenly curved and tapered, with scattered sensory setae ; aedeagus consisting of a single spoon-like element with a broad triangular piece lying across it. Cercopod (fig. 4E), swollen basally, only slightly longer than ninth tergite, bearing a single retinaculum.

♀. Similar to ♂, subgenital plate squarish (fig. 4F), with a moderately deep medial emargination, and a short triangular genital digit. Spermathecae as in fig. 4F, with faint

pattern of circular markings. Ovipositor short, much curved, only twice as long as subgenital plate.

Type, allotype and 4 ♀ paratypes. Fiji Is.: Botanical Gardens, Suva, 31.i.1950.

This species was collected crawling about on the trunks of trees in the botanical gardens at Suva. It is differentiated from the other species of this genus with a fourteen-segmented antenna, such as the cosmopolitan, *Ps. severini* Tonn., or the African, *Ps. latipennis* Tonn. and *Ps. acuta* Tonn., by the characteristic genitalia.

Brunettia sexpunctata sp. n.

The three specimens from which the description of this species is taken, were lent to me from the British Museum. One, a ♀, had been examined by Mr. A. L. Tonnoir in 1920, and a label affixed bearing the name *Brunettia 6-punctata* and designating the specimen as the type. Edwards (1928), in *Insects of Samoa*, mentions this species under the name *B. sexpunctata* Tonn., but no description of it has ever been published and it is thus only a manuscript name. I have retained it and selected a male as type; Tonnoir's named specimen now becomes the allotype.

A dark brown species with six prominent white spots on the wing.

♂. Wing length 1·7 mm.

Prominent white tuft on face, with shorter dark scales more dorsally; vertex with scattered dark hairs; eye bridges narrow and widely separated. Antenna with tip missing in type, but certainly longer than width of wing; scape only a little longer than wide pedicel spherical, first flagellar segment with neck shorter than bulb (fig. 5A), which is eccentric; scape, pedicel and basal third of bulb of first flagellar segment covered with brown scales; verticils closed and brownish, ascoids paired, arising close together, strongly curved and very thick. Palpi with first two segments subequal, third a little longer, fourth about twice as long as first, covered with scattered whitish scales.

Thorax with brownish covering apart from a tuft of white hairs just anterior to wing base; wing with venation typical of the genus, with straight radiating veins; wing apex very slightly below tip of R_5; radial sector pectinate (fig. 5B), radial fork slightly before medial, both near to base of wing; membrane and veins evenly covered with fine brown hairs, apart from six prominent tufts of pure white scaly hairs arranged as follows (fig. 5C): large tufts just before tips of R_1 and Cu, smaller tufts just before tips of R_2 and M_3, very small tufts just before tips of R_4 and M_1; prominent patch of erect brown hairs present on veins R_2, R_3, R_4 and M_1, proximal to level of most basal white tufts. Ventral surface of wing with hairs replaced by dark brown scales on basal half and a band of lighter scales mingling with hairs on anterior margins of wing as far forward as tip of R_2; alula tuft long, forming a pencil of dark brown hairs reaching almost to basal white tuft on posterior margin of wing. Legs brownish; first tibiae with white scales on apical third, others less extensively white; metatarsi white on apical quarter.

Abdomen with sparse long brown hair, genitalia missing from type which is the only ♂.

♀. Wing length 2·5 mm.

Antennae missing from allotype and paratype females; wing with white markings similarly placed, but erect brown hairs reaching further forward; ventral surface with a dense band of scales with metallic reflection, filling in space between M_4 and posterior wing margin; elsewhere less conspicuous brownish scales present amongst the hair over the whole ventral surface.

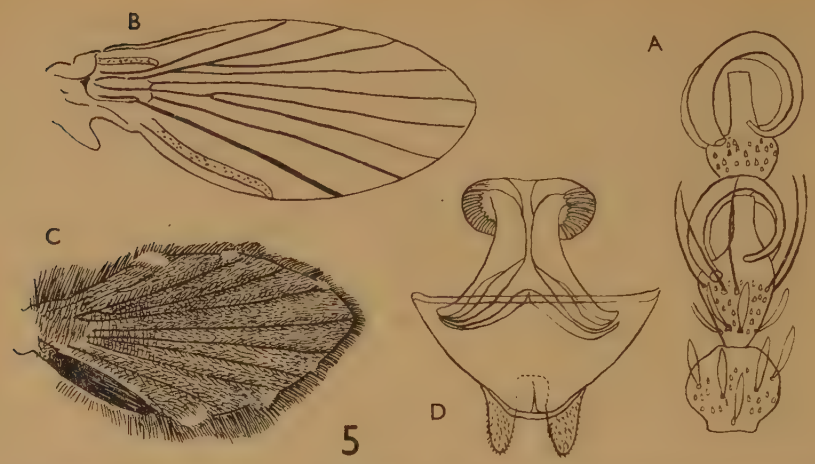


Fig. 5.—*Brunettia sexpunctata* sp. n. A, Pedicil and first two flagellar segments of antenna. B, wing, showing venation (from allotype); C, wing, showing vestiture (from type); D, subgenital plate and spermathecae.

Subgenital plate and spermathecae typical of the genus (fig. 5D), spermathecae with radiating linear sculpturings, ovipositor half as long again as subgenital plate.

Type. Fiji Is.: Nausori, October, 1926 (*R. Veitch*).

Allotype. Fiji Is.: Lautoka Mountains 2.iv.1921, (*H. Greenwood*).

Paratype ♀. Fiji Is.: Suva, 12.vii.1923 (*C. L. Edwards*).

This species may be distinguished from all other described species of the genus, by the possession of only six white markings on the wing margin.

Check List of Fijian PSYCHODIDAE.

Sub-family Psychodinae.

Telmatoscopus Eaton.

T. vitiensis sp. n.
T. inusitatus sp. n.

Psychoda Latreille.

P. alternata Say., cosmopolitan species.
P albipennis Zett. (listed in Edwards, 1928), cosmopolitan.
P. savaiiensis Edwards (hitherto known only from Samoa).
P. infurcis sp. n., occurs also in Rarotonga, Cook Is.
P. cochlearia sp. n.

Lepidopsychoda Edwards.

L. tineiformis Edw. (listed in Edwards, 1928), occurs also in Samoa.

Brunettia Annandale.

B. biformis Edw. (listed in Edwards, 1928), occurs also in Samoa.
B. sexpunctata sp. n.

SUMMARY.

Five new species of Fijian PSYCHODIDAE (Diptera) are described : *Telmatoscopus vitiensis* sp. n., *T. inusitatus* sp. n., *Psychoda infurcis* sp. n., *Ps. cochlearia* sp. n., and *Brunettia sexpunctata* sp. n. The species *Psychoda savaiiensis* Edwards and *Ps. alternata* Say are recorded from Fiji for the first time ; a check list is included.

I am indebted to Mr. Paul Freeman of the British Museum, for the loan of specimens. The material was collected whilst I was a member of the Otago University Medical School Expedition to the Cook Islands. This expedition was financed by a grant from the Medical Research Council, and I wish to acknowledge my indebtedness to this body.

REFERENCE.

EDWARDS, F. W., 1928, *Insects of Samoa. Part VI. Diptera.* Fasc. 2 : 68–75. (British Museum (Natural History)).

INDEX

New names are marked with an asterisk.

Abisara, 106
abnormalis, Aëdes (Aëdimorphus), 40
acaciae, Megastigmus, 130, 132
Acanthomyops, 61
Acanthoxyla, 174–175
Acraea, 105–107
*acroceroides, Terphis, 50
acutipennis, Psychoda, 42–46
adusta, Sarcophaga, 163, 173
Aëdes, 7–9, 39–41, 65–69, 139–141, 156
Aeschna, 73
Agriocnemis, 77
albidula, Dericorys, 20
albipennis, Psychoda, 184
*albizziae, Megastigmus, 129–132
albocephalus, Aëdes (Aëdimorphus), 39
alina, Sarcophaga, 80
alluaudi, Ogcodes, 50
alternata, Psychoda, 45, 184
amaniensis, Anthicus, 21, 24–25
amaranta, Diestogyna, 102
amaurus, Halsanalotes, 79
amazonica, Ophrynella, 29
Amphorophora, 1–3
Anagaricophilus, 142–143
anatolicus, Anterastes, 158
Anax, 72, 73
andamanensis, Aëdes, 141
angelicae, Sarcophaga, 80
Anisoptera, of Mauritius, *Key to genera and species*, 72–73
*ankarensis, Montana, 159
Anterastes, 157–158
Anthicus, 21–25
anthracogramma, Erioptera, 88
*aphidum, Diaeretus, 4–6
Aphrosylopis, 45
*archaemenesopis, Charaxes etheocles suk, 99
arcuata, Hypocalis, 147
arenaria, Chersodromia, 78–79
ascalonicus, Myzus, 94
Aspidoproctus, 114–115
*assamensis, Misracoccus, 115, 117–120
Atoconeura, 56–57
aubyni, Charaxes etheocles, 98
aucklandicus, Zaluscodes, 45
aurantiaca, Pseudolimnophila, 86–87
aurora, Trithemis, 75
*auspicis, Tipula (Acutipula), 85
azurea, Aeschna 73

babadeghi, Anterastes, 157
barnardia, Simulium, 14
batissa, Sarcophaga, 163, 164, 173
*beaumonti, Tenthredo, 53–54
Bematistes, 105
Bibulus, 133–135
biformis, Brunettia, 184
*bifoveolata, Montana, 160–161
binodosa, Sarcophaga, 163, 173
biordinata, Atoconeura, 55, 57
*birandi, Poecilimon, 150
*bisatrata, Pseudolimnophila, 86–87
bispina, Gynacantha, 72, 73
bollonsi, Orchestia, 45
bombycinis, Guiglia, 34
booersiana, Sarcophaga, 163, 164, 173
*borbonica, Hypocalis, 147
brachiale, Orthetrum, 73, 74
brachium, Simulium, 17
Brachycaudus, 60–63
braunsi, Sarcophaga, 169, 173
brevisignatus, Anthicus, 21, 22
Bruchophagus, 130
Brunettia, 183–185
brunni, Tylotropidius, 133
butleri, Charaxes smaragdalis, 97
butleri, Diestogyna, 102
*bwamba, Aëdes (Aëdimorphus) tricholabis, 67–69

caerulea, Abisara, 106
*caerulea, Charaxes smaragdalis, 97
caerulescens, Thisoicetrus, 134–135
caffer, Ogcodes, 50
capensis, Aëdes (Aëdimorphus), 7, 8
cardui, Brachycaudus, 63
Centrioncus, 109–113
cepisetis, Ogcodes, 50
Cerococcus, 35–38
*cervus, Poecilimon, 153–155
chanleri, Charaxes etheocles, 98
chapini, Sarcophaga, 171, 173
Charaxes, 97–99
Cherostus, 144–145
Chersodromia, 78–79
cisatlantica, Toxorhina (Toxorhina), 89
clavatus, Ogcodes, 50–52
Clitarchus, 174–175
*cochlearia, Psychoda, 181–183, 184–185
Coenagriocnemis, 70–71
Coenosia, 45
coffeatus, Ogcodes, 50
Coloboneura, 78
Colotis, 107
*concinnus, Anagaricophilus, 142–143
congolensis, Aëdes (Aëdimorphus), 67
conradti, Pseudacraea eurytus, 104
consanguineus, Anthicus quadrillum, 21
convexus, Lophococcus, 114–115
convexus, Perissopneumon, 115
copleyi, Simulium, 14
cora, Macrodiplax, 73, 77
Corticeus, 145–146
*curtipennis, Chersodromia, 78–79
Cyrtodiopsis, 110
cyrtosterna, Dericorys, 20
Cyrtus, 47

damnosum, Simulium, 15
*decoomani, Orussus, 30, 32
*demeilloni, Sarcophaga, 164, 166–167, 173
Dericorys, 18–20
desertus, Bibulus, 133–134
Diaeretus, 4–6

Diasemopsis, 110–111
Diestogyna, 101–103
difficilis, Chersodromia, 79
*dingaani, Sarcophaga, 164, 168–169, 173
Diopsina, 110
Diopsis, 110
Diplacodes, 72, 74
distinctus, Ogcodes, 51
diversicolor, Anthicus amaniensis, 21
doriclea, Diestogyna, 102–103
Drosichiella, 114

ephippiatus, Corticeus, 146
erecta, Sarcophaga, *Key to allied species*, 171, 173
Erioptera, 88
Euptera, 100–101
Eurytoma, 130
*excisus, Poecilimon, 152
exilis, Agriocnemis, 77
*exsul, Pseudolimnophila, 86
*extraordinata, Atoconeura, 56–57

falciforceps, Sarcophaga, 169, 173
*famosa, Fenella, 55
fasciventris, Sarcophaga, 163, 173
Fenella, 55
ferox, Perissopneumon, 114, 115
ferox, Sarcophaga, 80–81
filicis, Aëdes (Aëdimorphus), 65, 67
filipennis, Coenosia, 45
flavescens, Pantala, 72, 76
*fleutiauxi, Megapenthes, 143–144
formosa, Anax, 73
frisicum, Metopolophium, 90
frugi, Pseudolimnophila, 86
*fungivorus, Cherostus, 144–145

gambiae, Diestogyna, 102
*glandifer, Poecilimon, 150–152
Glauia, 20
*grahami, Anthicus, 23–24
guanicola, Thomosis, 45
*guichardi, Dericorys, 18–20
Guiglia, 33–34
*guillarmodi, Sarcophaga, 80–82
Gynacantha, 72, 73

haematina, Trithemis, 72, 74–75
Halsanalotes, 78
haworthi, Aëdes (Aëdimorphus), 7, 9
*heischi, Phlebotomus (Phlebotomus), 11
helichrysi, Brachycaudus, 61
Helle, 48
Hemicordulia, 72, 73–74
hirsuta, Mormotomyia, *Systematic position*, 121–128
hirta, Chersodromia, 78–79
hookeri, Clitarchus, 174–175
Hypocalis, 146–147

Icaridon, 45
imperator, Anax, 73
impunctata, Styringomyia, 89
incana, Chersodromia, 78–79
incerta, Libellula, 76
inchoata, Thinodromia, 78–79
indi, Eurytoma, 130
indi, Megastigmus, 130
indicus, Aëdes, 141
*indira, Stethorus, 148–149
*infurcis, Psychoda, 180–181, 184–185
insulare, Coenagriocnemis, 70
*insularis, Corticeus, 145–146
*intermedia, Charaxes etheocles suk, 98–99
intermixta, Diestogyna, 102–103
inusitata, Coloboneura, 79
*inusitatus, Telmatoscopus, 178–179, 184–185
Ischnura, 70
Ischyroplectron, 45
isolatum, Ischyroplectron, 45

Jacksonia, 90–95
japonicus, Orussus, 29–30
judaica, Fenella, 55

kapretwae, Aëdes (Aëdimorphus), 7
karschi, Acraea sotikensis, 106–107
karschioides, Mimacraea krausei, 106–107
kinsangani, Sarcophaga, 82–83
kirki, Charaxes etheocles, 98–99
*kirkoides, Charaxes etheocles suk, 98
*kosswigi, Pholidoptera, 158–159

lacerata, Tramea, 76
laeviusculus, Clitarchus, 174–175
langi, Sarcophaga, 169, 173
Lathrecista, 74
latifasciata, Bematistes quadricolor, 105
lefebvrei, Diplacodes, 72, 74
Lepidopsychoda, 184
letabum, Simulium, 14, 15
*lewisi, Tanytarsus (Cladotanytarsus), 58–59
Libellula, 76
liberia, Sarcophaga, 171, 173
limbata, Tramea, 72, 76
*linariae, Brachycaudus, 60–63
lineatus, Aphrosylopis, 45
Locusta, 136–138
Lophococcus, 114–115
loriae, Orussus, 34
lucius, Megapenthes, 143
*lucretioides, Pseudathyma, 99–100
*lumsdeni, Phlebotomus (Sergentomyia), 11
lutacea, Charaxes etheocles, 98
*lutea, Acraea baxteri subsquamia, 105
luteostriata, Diestogyna, 101

Macrodiplax, 73, 77
maculipennis, Stiricorsia, 34
*madgei, Hypocalis, 146–147
*magnifica, Acraea chilo, 105
*malagasica, Erioptera (Podoneura), 88
mancus, Tanytarsus, 59
marchali, Thalassothemis, 73, 74
maritima, Sarcophaga, 171, 173
marituana, Sarcophaga, 80
*marsabitensis, Pseudacraea boisduvali, 103–104
mauricianus, Anax, 72, 73
*medius, Phlebotomus (Sergentomyia) congolensis, 11, 13
Megalybus, 48
Megapenthes, 143–144

Megastigmus, 129–132
melanops, Diestogyna, 102–103
mellipes, Bruchophagus, 130
*merops, Simulium, 14
*Meruia, 47–48
Metopolophium, 90
migratorioides, Locusta migratoria, *Table for determination of sexes*, 136–138
Mimacraea, 106–107
*mirifica, Euptera, 100–101
*Misracoccus, 115–120
Monophlebus, 114
Montana, 159–161
monticola, Charaxes archaemenes, 99
morisoni, Myzus, 90, 94
Mormotomyia, 121–128
*morogoro, Bematistes quadricolor, 105
*muspratti, Sarcophaga, 163, 165, 173
mutilus, Aëdes (Aëdimorphus), 65–66
Myzus, 90, 94

narcaeus, Simulium, 16–17
nasutum, Icaridon, 45
*natalensis, Simulium, 14–15
*ngong, Aëdes (Aëdimorphus), 7–9
niger, Acanthomyops, 61
nigritarsis, Simulium, 16, 17
nodosa, Sarcophaga, *Key to allied spp.*, 163–164; 173
nodosa, Terphis, 48, 52
notata, Thisoicetrus littoralis, 133

Ogcodes, 50–52
Oncodes, 50–51
Ophrynella amazonica, 29
Opsebius, 47
Orchestia, 45
oregmae, Diaeretus, 6
orientalis, Charaxes smaragdalis, 97–98
Orthetrum brachiale, 73, 74
Orussus, 29–34
oryx, Tipula (Acutipula), 85

padi, Rhopalosiphum, 90
Pantala, 72, 76
papillata, Jacksonia, 90–95
parthenogenetica, Psychoda severini, 45
pauperculus, Stetharus, 149
pedestris, Schoenophilus, 45
Perissopneumon, *Status of*, 114–120
perkinsi, Tenthredo, 53–54
*perpicturata, Trentepohlia, 87–88
petiolatum, Zyxomma, 72, 75, 77
philbyi, Dericorys, 20
Philopota, 48
Phlebotomus, 11–13
Pholidoptera, 158–159
phyllanthi, Amphorophora, 1, 3
phyllanthi, Monophlebus, 114
phyllanthi-wikstroemiae, Amphorophora, 1
phyllolabis, Aëdes (Aëdimorphus), 39
picta, Charaxes etheocles, 98
*pileae, Cerococcus, 35–38
Poecilimon, 150–155
poultoni, Mimacraea krausei, 106–107
prasina, Acanthoxyla, 174–175
prodiopsis, Centrioncus, 112–113
prunicola, Brachycaudus, 63
Pseudacraea, 103–105
Pseudaspidoproctus, 114
Pseudathyma, 99–100
Pseudodiopsis, 110
Pseudolimnophila, 86–87
Psychoda, 42–46, 180–185
Pterodontia, 47, 50
pulchellus, Anagaricophilus, 143
pulcher, Thisoicetrus, 133

quadricaudata, Drosichiella, 114
quadricaudatus, Monophlebus, 114
quadrillum, Anthicus, 21–25
queenslandensis, Guiglia, 34

*ramburi, Coenagriocnemis, 70–71
rami, Aëdes, 141
reaumuri, Sappaphis, 61
regularis, Sarcophaga, *Key to allied spp.*, 169, 173
Rhopalosiphum, 90
Rhyothemis, 72, 75–76
ribensis, Diestogna, 102
rufipes, Coenagriocnemis, 70, 71
*rufo-brunnea, Pseudacraea eurytus, 104–105
rutherfoordi, Simulium, 17

samia, Sarcophaga, 171, 173
Sappaphis, 61
Sarcophaga, *from Ethiopian region*, 80–84, 162–173
savaiiensis, Psychoda, 184
schaefferi, Tenthredo, 54
Schoenophilus, 45
*seculatus, Aëdes (Aëdes), 139–141
semihyalina, Rhyothemis, 72, 75–76
*semlikiensis, Aëdes (Aëdimorphus), 40–41
senegalensis, Ischnura, 70
senex, Pseudolimnophila, 86
serbicus, Anterates, 157
sericata, Guiglia, 33–34
serrei, Aspidoproctus, 114–115
*sexpunctata, Brunettia, 183–185
sikorai, Thisoicetrus, 133
similata, Libellula, 76
*simillima, Sarcophaga, 82–84
simplex, Simulium, 17
Simulium, 14–17
singularicornis, Anthicus, 21, 23
smaragdalis, Charaxes smaragdalis, 97
*smithburni, Aëdes (Aëdimorphus), 39–40
smithi, Pterodontia, 50
*somalica, Colotis fausta, 107
*somereni, Meruia, 48
speculifera, Chersodromia, 78
speculifrons, Cherostus, 145
Sphyracephala, 110
Stethorus, 148–149
Stigmacoccus, 114
Stiricorsia, 34
stokesi, Aëdes (Aëdimorphus), 7, 9
*striatus, Orussus, 32–33
stylata, Libellula, 76
Styringomyia, 89
*subdistinguendus, Sarcophaga, 169–170, 173
*subimmaculata, Styringomyia, 89
subsignatus, Anthicus brevisignatus, 21–23.

*suk, Charaxes etheocles, 98
sulphuripes, Tenthredo, 54

*taeniomera, Toxorhina, 88–89
tamarinda, Monophlebus, 114
tantalua, Abisara, 106
Tanytarsus, 58–59
tarsalis, Aëdes (Aëdimorphus), 39
tectonae, Drosichiella, 114
Teleopsis, 110
Telmatoscopus, 176–179, 184–185
tentaculum, Simulium, 14
Tenthredo, 53–54
Terphis, 48, 50, 52
terrea, Glauia, 20
Thalassothemis, 73, 74
Thinodromia, 78–79
Thisoicetrus, 133–135
Tholymis, 72, 77
Thomosis, 45
Thyllis, 48
tillarga, Tholymis, 72, 77
tineiformis, Lepidopsychoda, 184
Tipula, 85
touffeum, Simulium, 15
Toxorhina, 88–89
Tramea, 72, 76
*transvaalensis, Sarcophaga, 80
Trentepohlia, 87–88
tricholabis, Aëdes (Aëdimorphus), 67–69
trimeni, Pseudacraea boisduvali, 104
Trithemis, 72, 74–75
*turcicus, Poecilimon, 152–153
Tylotropidius, 133

*uludaghensis, Anterastes, 157–158
uvarovi, Dericorys, 20
*uvarovi, Montana, 159–160

vallistris, Aëdes, 141
*vansoni, Sarcophaga, 163, 164, 173
vexans, Aëdes (Aëdimorphus), 156
vicaria, Sarcophaga, 171, 173
villa, Sarcophaga, 171, 173
vinsoni, Ischnura, 70
violacea, Charaxes etheocles, 98
virens, Hemicordulia, 72, 73–74
*vitiensis, Telmatoscopus, 176–178, 184–185

walkeri, Cherostus, 145
Walkeriana, 115, 120
wigglesworthi, Aëdes (Aëdimorphus), 40
wikstroemiae, Amphorophora, 1–3

xenosterna, Dericorys, 20
xyliae, Misracoccus, 117
xyliae, Walkeriana, 115, 120

yerburyi, Aëdes, 141

Zaluscodes, 45
zimmermani, Perissopneumon, 114
*zuluensis, Anthicus, 24
*zuluensis, Sarcophaga, 171–172, 173
Zyxomma, 72, 75, 77

PUBLICATIONS

The principal Publications of the Royal Entomological Society are *Transactions* and *Proceedings*.

The **Transactions** form an annual volume, each paper in the volume being issued as a separate part. The parts are issued irregularly throughout the year.

The **Proceedings** are issued in three series:

Series A. General Entomology

Series B. Taxonomy

Series C. Journal of Meetings

Series A and B are issued in twelve parts, forming an annual volume of approximately 240 pages each.

The following information is supplied for the guidance of authors wishing to submit papers for publication in any of the Society's journals.

TRANSACTIONS

Papers offered for publication in the *Transactions* are considered by the Publication Committee of the Society, which meets usually in the months of May and November. In order that papers may be considered at these meetings it is necessary for the manuscript and drawings for illustrations to be in the hands of the Registrar fourteen days before the meeting of the Committee.

The Society is prepared to undertake the provision of a reasonable number of figures, in line or half-tone. Colour work is accepted only by special arrangement.

Papers of less than eight printed pages (approximately 7,000 words) will not normally be accepted for the *Transactions*, and papers by authors who are not Fellows of the Society must be communicated by a Fellow.

PROCEEDINGS SERIES A AND SERIES B

Papers submitted for publication in either *Series A* or *Series B* of the *Proceedings* are considered by the Editor and may be submitted at any time. Papers by authors who are not Fellows of the Society may be accepted if they are communicated by a Fellow.

Line blocks will be provided by the Society. Half-tone and colour work are accepted only by special arrangement, and the author may be required to pay for the blocks.

PROCEEDINGS SERIES C

Series C is issued before every General Meeting. It contains abstracts of communications to be made, together with the titles of papers accepted for publication in the *Transactions*.

The annual subscription to *Series A. General Entomology* is £2 0*s.* 0*d.*; *Series B. Taxonomy*, £2 0*s.* 0*d.* (single parts 4*s.* 0*d.*); and *Series C. Journals of Meetings*, 6*s.* 0*d.*

As from January, 1936, the journal *Stylops* is continued as *Proceedings Series B. Taxonomy*. Copies of volumes 1–4 are available at £1 16*s.* 0*d.* each, post free.

GENERAL

The original drawings for all figures must be supplied by authors and must be drawn to a scale which will permit of their reduction, singly or after grouping, to an area of dimensions not exceeding 7 by $4\frac{1}{2}$ in.

A uniform method is adopted for the citation of bibliographical references in the Society's publications as follows:

Smith, A., 1936, New Species of COCCIDAE. *Proc. R. ent. Soc. Lond.* (B) **6**: 301–306. pl. 1.

——, 1936, New species of COCCIDAE. *Trans. R. ent. Soc. Lond.* **84** : 901–936.

Titles of periodicals cited are to be abbreviated in the manner indicated in the *World List of Scientific Periodicals, 2nd edition*, 1934.

Authors are entitled to receive 25 copies of their papers free of charge and may purchase additional copies provided that request be made before publication.

Papers offered for publication should be sent to the Registrar, Royal Entomological Society of London, at 41, *Queen's Gate, London, S.W.* 7, and must be typewritten on one side of the paper only, with double spacing. **All papers must be provided with a summary.**

The copyright of the Society's publications is vested in the Society.

MEETINGS

TO BE HELD IN THE SOCIETY'S ROOMS

41, Queen's Gate, S.W. 7

1951

Wednesday, January 17 (Annual Meeting)
" February 7
" March 7
" April 4
" May 2
" June 6

THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

The Fellowship and Fees

Fellows pay an Admission Fee of £2 2*s*. The Annual Contribution, £3 3*s*., is due on the first day of January in each year, and is payable in advance. Fellows under the age of 25 years may pay the entrance fee in two equal annual instalments.

Fees should be paid to the Hon. Treasurer, at 41, Queen's Gate, S.W.7, and *not to the Hon. Secretary.*

Fellows desiring to pay their Annual Contribution through their bankers may obtain an official form of banker's order by applying to the Hon. Treasurer.

Fellows whose Contributions for the current year have been paid are entitled to receive the *Transactions* and *Proceedings* of the Society free of charge. Further copies may be purchased at reduced prices by applying to the Hon. Secretary.

Forms of application for Fellowship, copies of the Bye-Laws and the List of Fellows may be obtained from the Hon. Secretary.

Meetings and Exhibitions

Fellows and others wishing to make a communication to a General Meeting of the Society are requested to send in their names, the title of their exhibit, and a short abstract of their remarks, to the Hon. Secretary fourteen days before the meeting at which it is proposed to make the communication. Should it be desirable to publish a fuller account of the communication the manuscript may be submitted for publication in *Proceedings Series A* or *Series B*. If the epidiascope is required, 24 hours' notice must be given. Objects for projection should not exceed 6 in. by 6 in.

Fellows resident abroad, or otherwise unable to attend meetings, are reminded that notes or observations sent to the Hon. Secretary may be communicated to a General Meeting on their behalf.

PRINTED FOR THE SOCIETY BY ADLARD AND SON, LTD., BARTHOLOMEW PRESS, DORKING.